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WALTER DOUGLAS

Elected President of the American Mining Congress at the Annual Convention held last month.

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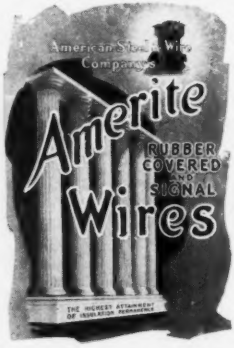

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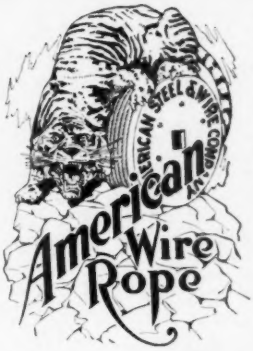

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THE MINING CONGRESS JOURNAL

DECEMBER CONTENTS 1916

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The American Mining Congress is a voluntary association supported by the dues and fees of its members. It is striving to bring about:

First—Safety and efficiency in mining operations.

Second—Intelligent conservation with a view to the highest development and use of our mineral resources.

Third—The stimulation of investment in practical mining operations by showing that mining is a legitimate business when intelligently conducted.

Fourth—Uniformity in state laws governing mining operations carried on under like conditions.

Fifth—Such federal co-operation through research and investigation as will furnish the basis for intelligent state legislation, and will solve those problems of economical production, treatment and transportation which are essential to an increase in mineral production.

Sixth—The improvement of the economic conditions underlying the coal mining industry.

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.....191.....

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Associate memberships are designed for those not actively interested in mining, but who are willing to assist a state Chapter of the Mining Congress in helping to develop the Mining industry within the State. All memberships include subscription to the MINING CONGRESS JOURNAL.

Every member of the Mining Congress should undertake to send in at least one application each month. Will you help by having the following blank filled in and mail to this office?

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MINING CONGRESS BANQUET, NOVEMBER 16

VOL. 2, NO. 12 WASHINGTON DECEMBER, 1916

THE MINING CONGRESS JOURNAL

Official Organ of the American Mining Congress

NINETEENTH CONVENTION PROVES BIG SUCCESS

Never before, in the nineteen years during which the American Mining Congress has been in existence, has the future been so promising. At the convention held last month in Chicago, there was such unmistakable evidence of general appreciation of the work that the Mining Congress is doing that more effective endeavor in the future is certain.

As with all cooperative organizations, the strength of the Mining Congress is judged by the nature of the support given it. When the busiest of busy men will travel long distances and take valuable time away from their own businesses to join in a convention, it is absolute proof that their hearts are in the organization of which they are members.

Any tendency toward apathy on the part of the membership of a cooperative organization robs it of its ability to accomplish. With the knowledge that the most active and the most representative men in the mining industry are enthusiastic supporters of the Mining Congress and its work, the prestige enjoyed by the organization is increasing to the point where it has weight with the public and with those who make the laws.

SALARY SCALE OF 50 YEARS AGO NO LONGER ADEQUATE

Private enterprise is helping itself with alarming repetition to the trained men in the Government service. As the ranks thin, the difficulty of replacement with men of the same grade grows greater. Uncle Sam has not done much revising of his salary scale since the Civil War. The public interest can be served best if the remuneration, especially in the technical service, is made sufficiently attractive to enable the Government to have first choice of the more competent.

WALTER DOUGLAS WELL KNOWN TO MINING MEN

Walter Douglas, the newly elected president of the American Mining Congress, needs no introduction to the mining industry. He is one of those busy men who finds time to do work for the public good. With his administrative genius, devoted in part to the work of the Mining Congress, it is certain that there will be no interruption in the important work which the Congress has been doing.

BALANCED ATTENDANCE DIFFICULT TO SECURE

Some emphasis has been placed, in certain quarters, on the fact that the metalliferous portion of the mining industry was not represented at the Chicago Convention of the Mining Congress in proportion to the representation of the coal mining industry. While it is true that there were more coal mining men present at the recent convention, there is nothing surprising about it. A convention is certain to be attended more largely by those representing mining activities in adjacent territory. When a convention of the American Mining Congress is held in the West, metal-

liferous miners greatly outnumber the representatives of the coal mining industry.

Considering the very active state of the mining industry, it is really a matter of surprise that so many mining men were able to attend. This is especially true with regard to the metal miners as they had such long distances to travel. The American Mining Congress is not controlled or influenced by any one class of mining men. It is working just as actively in the interest of the metal miners as it is in the interest of coal miners.

EXHIBITORS ADD TO SUCCESS OF CONVENTION

Just as generous purchases of advertising space enabled us to print a more representative journal in November, the exhibitors at the Mining Congress Convention added materially to the success of the Chicago meeting. In another column a complete list of the exhibitors will be found.

As most of the exhibitors took enough orders during the convention to more than pay for the expense and trouble, they expressed themselves as being more than satisfied, but even if no single order had been secured, an exhibit at such affairs as the Mining Congress Convention is a certain indication of enterprise that does much to enhance prestige. It impresses many a potential buyer whose order may not be placed for a considerable interval.

ANTAGONIZES NONE, IS LOVED BY ALL

That a degree of affection, stronger than realized by most of us, exists among Mining Congress members for Carl Scholz, who just has retired from the presidency of the organization, became very evident at the recent convention. The watch which was given Mr. Scholz, while of considerable intrinsic value, was entirely inadequate to represent the esteem in which he is held by the donors.

Mr. Scholz is one of those men so filled with the milk of human kindness that he unknowingly excites a degree of affection that is uncommon. His personality is one that antagonizes none.

Mr. Scholz, a foreigner by birth, who knew no English until he already was an adult, has overcome the extraordinary number of obstacles which beset the path of a stranger in a strange land, and has left his imprint, deeply dented, in the affairs of one of the greatest American industries. For three terms he was president of one of the nation's greatest cooperative organizations. He has done much to draw mine operators into a closer relationship that is making for the advancement of the industry. He has done a great deal to cause the wage earner and the general public to cast aside prejudicial suspicions which so often have prevented them from joining hands with the mining operator for the common good.

SHORTAGE OF LABOR FOUND IN SOME MINING DISTRICTS

H. C. McCaskey, chief of the mineral resources division of the Geological Survey, has returned from a trip to the three western offices of the Survey at San Francisco, Salt Lake City and Denver. This trip was made in connection with the work of the current fiscal year. Mr. McCaskey, in addition, visited some new quicksilver prospects near Morton, Wash., and Gold Hill, Oreg.

Mr. McCaskey reports that besides the activity among those prospecting for quicksilver there is also much interest shown in magnesite, manganese and many other of the rarer metals, which have become especially important since the outbreak of the war. In some of the regions he visited, Mr. McCaskey found a shortage of labor.

DR. WHITE FIRST PROMULGATED THE ANTICLINAL THEORY

"The anticlinal theory was first promulgated by Dr. I. C. White, about 1880. It is a theory to explain the accumulation of oil and gas in large quantities. From a study of the distribution of oil and gas pools in relation to geologic structure, he discovered that the production was generally found associated with anticlines or earth folds. The anticlinal theory of oil and gas accumulation reulted from an attempt to explain this relation, and also to explain the relation of oil, gas and salt water, which were observed to occupy definite positions in the anticline. Gas, the lightest substance, being in the upper part of the anticline; oil, the next heavier, below the gas, and beneath the oil, the salt water." (Extract from the addresss of J. C. McDowell at the Mining Congress Convention.)

NINETEENTH ANNUAL CONVENTION OF MINING CONGRESS WAS GREAT SUCCESS

Walter Douglas, of Phelps, Dodge & Company, is Elected President—Mining Congress Gets Squarely Behind Western Idea of Conservation after Fight is Staged in Resolutions Committee—Attendance Large

A decided stride toward uniform legislation covering coal mining; a clearer understanding of the obstacles which must be met before limited cooperation between coal companies may be effected; a more determined desire for a uniform cost accounting system and an unequivocal announcement in favor of the western idea of conservation were among the important results of the nineteenth annual convention of the American Mining Congress, which was held in Hotel La Salle, Chicago, November 13 to 16. Walter Douglas, of the Phelps, Dodge Co., was elected president of the Congress for the ensuing year. The place of the next meeting has not been selected. Birmingham, Ala., Pittsburgh, St. Louis and Duluth are being urged strongly.

That the mine operators of the country are more eager than ever before to cooperate not only among themselves, but with their employes and all other interests with which they come in contact was made very evident. The dog-eat-dog policy, which has been so much in evidence in the mining industry in the past, has become decidedly unpopular, the convention showed. Operators and wage-earners are making their conduct conform more and more to the golden rule, as was so clearly shown by the attitude of their representatives at this convention.

The convention from start to finish was a success. The coal section and uniform mining legislation section accomplished more than anyone had anticipated. The oil section developed into a meeting of greater importance than had been expected. In putting through L. W. Trumbull's public land resolution, a great victory for the western idea of conservation was scored. It will be recalled that a similar resolution had failed to pass at a previous session of the American Mining Congress. It was not accepted by the Resolution Committee at this convention until several hours of acrimonious debate had taken place.

There was some disappointment in the metalliferous section. The attendance of the metal mining men was comparatively small. Several of those who were to have presented papers before this section were prevented at the last moment from being present. Despite the handicaps several interesting sessions of this section were held and much benefit was reported, especially by those who were interested in flotation and in the zinc industry. Due to the great demands for metals few of the operators could spare the time to journey to Chicago for the convention. The place of the meeting, of course, was not centrally located for metal miners, and this had considerable bearing on the matter of their attendance. Even with Chicago centrally located with regard to the coal mining fields, many of the operators were so busy as to be unable to attend at all. Many others came to Chicago for a single day only, but with it all the convention was largely attended and there was nothing left to desire in the spirit manifested.

While the Mining Congress found it impossible to cooperate with the Uniform Mining Legislation Section to the extent that was desired, it is believed that the Mining Congress will be able to forward this work by close cooperation with a separate association which grew out of the Mining Legislation Section. This section resolved itself into The Uniform Mining Laws Association. A. J. Moorshead, of the Madison Coal Corporation of Chicago, was elected president of the new association. Robert Harlin, of the International Executive Board of the United Mine Workers of America, was elected vice-president, and J. G. Grossberg, of the Illinois Mining Investigating Commission was made secretary and treasurer. The resolution which was presented by the Uniform Mining Laws Association, which the American Mining Congress found impossible to pass, reads as follows:

"Whereas the Conference on Uniform Coal Mining Legislation called by Governor Dunne, of Illinois, has requested that the American Mining Congress join in the appointment of a Commission which in cooperation with the Bureau of Mines, shall codify the coal mining laws of the various coal producing States, and prepare a fundamental law to be presented to the legislators of the several coal mining States; and has also requested that the Mining Congress use its influence in securing for the Bureau of Mines an appropriation from the United States Congress to defray the expenses of such a Commission, and,

"Whereas, the American Mining Congress believes the object sought is a matter of great importance, but considers that the codifying of said laws and the preparation of a fundamental law can best be accomplished by the Bureau of Mines rather than by a Commission which could not be representative of the coal mining industry of the entire country.

"Therefore, be it resolved, that the secretary of the American Mining Congress be requested to prepare a bill for presentation to Congress of the United States authorizing the Bureau of Mines to codify the coal mining laws of the several States and providing an appropriation necessary for carrying out the provisions of the act; and, further authorizing the Bureau of Mines to prepare the preliminary draft of such uniform coal mining law for presentation to the legislators of the several States."

After the Uniform Mining Laws Association was formed it adopted this resolution:

It is the sense of this organization that a commission of Uniform Coal Mining Legislation be selected to consist as follows: Three coal miners to be appointed by the International Executive Board of the United Mine Workers of America; three coal operators to be appointed by the American Mining Congress; and three members, no one of whom shall be identified or affiiliated with the interests of either coal mine owners or coal miners or dependent upon the patronage or good will of either, to be appointed by the Secretary of the Interior as soon as he has been notified of the appointment of the miners' and operators' representatives; the Director of the Federal Bureau of Mines to be an ex-officio member of the Commission.

The duties of this Commission shall be to draft and report to the next annual meeting of this organization, a tentative code of uniform coal mining laws to be recommended for adoption to the legislatures of the several coal mining States.

We earnestly request Congress to appropriate the requisite funds to the Federal Bureau of Mines for the purpose of cooperating in carrying on the work of the Commission.

RESOLUTIONS WHICH WERE ADOPTED AT CONVENTION

The resolutions adopted by the American Mining Congress Convention give an idea of the importance of some of the matters which were under discussion. The more important resolutions adopted follow:

PUBLIC LANDS

This resolution was introduced by L. W. Trumbull, state geologist of Wyoming:

Whereas, the increasing expense of courts, schools, asylums, hospitals and other State institutions, the building and maintenance of roads, and the administration of law over its whole area, cannot be supported by a tax levied upon less than one-half of the area of the several States without undue and unfair burden; and,

Whereas, the policy laid down by Abraham Lincoln that "The public lands are an impermanent national possession held in trust for the maturing States," and the liberal administration of laws framed to make such policy effective have worked great advantage to the West and to the nation; and,

Whereas, the recent restrictive administration of the public laws and the efforts to make more difficult the acquisition of title to mineral and other public lands in the West have been largely instrumental in preventing settlement, in restriction development and hampering the progress of the mining industry and preventing it from keeping pace with industrial advancement in other lines of effort; and,

Whereas, the proposed policy for the Federal easing of mineral and other lands will keep from the State taxing power valuable property, which should contribute to the support of State institutions, will prevent investment, restrict development, foster monopoly in the hands of those who have already acquired title to the public domain and make necessary a system of Federal control and espionage subversible of free institutions, expensive of administrations and repugnant to the feelings of a free people, therefore, be it

Resolved, that we urge upon the Department of the Interior of the United States, a more liberal administration of our public land laws, that we disfavor the adoption at this time of any system of Federal leasing of mineral and other lands, or the enactment by Congress of any laws relating to public lands having a tendency to restrict the development of the West.

UNIFORM ACCOUNTING

Carl Scholz introduced this resolution:

Whereas, the information which the Federal Trade Commission has acquired within the time of its existence, has placed it in possession of data and other information on costs which will enable it to do much toward the improvement in conditions of the employes, aid the mine owners and at the same time subserve the interests of the public, and

Whereas, the American Mining Congress recognizing the many difficulties which confront the mining industry and believing the conservation of life and mineral resources are vital to the welfare of the nation;

Therefore, be it resolved, that we recommend that the Congress of the United States be requested to enact such legislation and make such appropriation as will enable the Federal Trade Commission to devise uniform systems of accounting applicable to the different branches of the mining industry.

AS TO OIL LANDS

Former Governor J. N. Gillett, of California, introduced this resolution:

Whereas this Congress is deeply interested in the just operation of the mining laws and,

Whereas as a result of certain land withdrawal orders by the President of the United States and of legislation by Congress, many persons who at great expense, and, as adjudged by the courts, have in good faith, developed the oil lands of the country, are threatened with ejectment and forfeiture of their developed lands and their investments;

Therefore be it resolved, that in all such cases we urge prompt and appropriate legislative relief so that those who have in good faith developed such lands shall be protected.

FOR INCREASED SAFETY

T. L. Lewis, former president of the United Mine Workers of America, introduced the following resolution:

Whereas, in mine safety work, one of the most serious problems encountered, is the lack of personal cooperation on the part of some operators and also on the part of some miners, thus preventing the success of the work of pro-

moting mine safety and reducing the number of accidents and fatalities in the mining industry, and

Whereas, while much has been accomplished it is believed to be vastly important that every possible agency looking to greater safety in mining operations shall be enlisted and that efforts be made to secure the active cooperation of those agencies which thus far have not voluntarily given their best support to the movement.

Now, therefore, be it resolved, that a committee of seven be appointed, which shall investigate this important subject and report its findings and recommendations to the next annual convention of the American Mining Congress.

AS TO LAW REVISION

The Denver Civic and Commercial Association introduces the following resolution:

Whereas, as the Federal mining laws now in force have resulted in controversy, litigation and expenses together with the retardation of mining development during long periods of litigation, as exemplified in all mining districts where these laws are enforced; and,

Whereas, a notable effort has been made by the American Institute of Mining Engineers and the Mining and Metallurgical Society of America and the American Mining Congress to secure comprehensive, intelligent investigation of the conditions that have arisen from evils in the existing Federal statutes; and,

Whereas, the situation is one so complicated that a thorough and intelligent investigation is an essential preliminary to the modification of the mining laws;

Therefore, be it resolved, that the American Mining Congress heartily concurs in and subscribes to the movement to bring about such an investigation by a competent, nonpolitical commission, to be appointed by the President of the United States, and to consist of three men, all of whom shall serve without pay; one of the commission to be a mining attorney, another a mining engineer, and the third a prominent mine owner; all of whom shall be thoroughly familiar with the defects in and the operation of the present mining laws. This commission, after thoroughly investigating the defects of the present law, shall formulate the necessary remedial legislation for the benefit of Congress, and hold itself an advisory body during the consideration of such legislation by Congress.

WOULD BETTER SERVICE

The following resolution was introduced by the Uniform Legislation Section:

Whereas, any law is only as useful as its enforcement. The safety of many thousands of lives and many millions in property is dependent upon a proper enforcement of the mining laws.

Therefore, it is the sense of the American Mining Congress that the mine inspection service, like the Army and Navy, and police and fire departments, should be scrupulously and rigidly kept out of politics.

In view of forthcoming changes of administration in a number of States, the press is requested to give this resolution the widest possible publicity.

WATER POWER

Judge Frank H. Short introduced the following resolution:

Whereas, conflict of laws and jurisdiction covering the development of water powers in the United States, makes the use of vast undeveloped water powers commercially difficult if not impossible, be it

Resolved, that it is the sense of the American Mining Congress in meeting assembled at Chicago, Ill., November 18, 1916, that the Government of the United States of America and the several States be urged to enact such laws and regulations as shall facilitate to the greatest degree and safeguard, the utilization of existing undeveloped water powers for industrial and domestic purposes, thus conserving and permitting the developing of our natural resources, and be it further

Resolved, that such laws should encourage and permit development of this resource and all of the other resources of the public land states without discrimination and under laws and conditions in all respects as favorable as those applicable in the States having no public lands, and be it further

Resolved, that copies of this resolution be transmitted to Congress, the legislatures of the States and the Government and State departments having present jurisdiction.

Many of the mining men who attended the convention declared they were repaid for the expense and loss of time occasioned by the trip by the opportunity offered to look over the commercial exhibits. Many of the leading supply houses had attractive displays of their products on one of the floors of the Hotel, which was given over to the convention.

Those who had exhibits are: Haggard Marcusson Co., Chicago; R. & J. Dick, Limited, Chicago and Glasgow; Central Foundry Co., Chicago; State of Arizona; Roebling, Chicago and Trenton; Goodman Mfg. Co., Chicago; General Electric, Chicago; Justrite, Chicago; Macomber & Whyte, Chicago; Link Belt, Chicago; Miller, Earle & Miller, Chicago; Ameling Core Drill Co., St. Louis; Monroe Calculating Machine Co., Chicago; Electric Storage Battery, Philadelphia; Tool Steel Gear & Pinion Co., Cincinnati; Florida Oil Flotation, Pensacola; U. S. Bureau of Mines; E. Christman, Massilon, Ohio; Draeger Oxygen Appliance Co., Pittsburgh, Pa.; Coal Age and Engineering and Mining Journal, New York; Stromberg Carlson Co., Chicago; Vulcan Fuel Co.; American Mine Door Co.; Sullivan Machinery Co.; Mining World, Siebe Garment Co., H. N. Elmer, Agent; J. D. Fate Co., Plymouth, Ohio; Carbic Mfg. Co., Duluth, Minn.

When announcement was made that a memorial volume devoted to observation on the life

and work of Dr. Joseph A. Holmes, had been published, numerous tributes to the late director of the Bureau of Mines were called forth.

Attendance at the convention was well above the average. The interest was unusually keen. The convention was divided into sections and much more was accomplished at this meeting than at any previous assemblage of the Mining Congress. In addition to the general session each day there were meetings of the Uniform Mining Legislation section, coal section, oil and gas section, metalliferous section and the public lands section.

Extracts from many of the papers which were read at the convention appear as separate items throughout this number of the JOURNAL.

BUREAU OF MINES LOSES TWO PROMINENT MEN

Two prominent members of the staff of the Bureau of Mines have tendered their resignations recently that they may accept private employ. W. A. Williams, chief of the petroleum technology division is to become assistant to the general manager of the Empire Gas & Fuel Company, of New York. Mr. Williams will be stationed at Bartlesville, Okla. His resignation takes effect January 1, 1917. Mr. Williams' salary with the Bureau of Mines is $4,800.

Karl L. Kithil, who was designated a short time ago to take charge of the Tucson mining station, has resigned to go with Schlesinger radium interests. His office will be in Denver. The salary attached to the Tucson station is $4,000.

DR. PAYNE TALKS INTERESTINGLY ON GRAVELS IN SIBERIA

Thermodynamics as applied to gravels to be worked hydraulically or by dredging were discussed interestingly by Dr. Henry Mace Payne, of New York, at the Monday night session of the Mining Congress Convention. With the aid of the steroptican, Dr. Payne was able to point out with great clearness the application of his theories on gravel deposist in Siberia. Dr. Payne is on a lecture tour which will include a number of the important mining schools.

OUTLOOK FOR CHEAPER COAL IS NOT PROMISING

"Anyone who is at all cognizant of the trend in price of labor and material can see little hope of relief in lower costs for these items. Furthermore, observation of the advances made in mining methods in the last decade or two affords slight warrant for belief in any charge of wasteful operation. As consumers of coal we might do well to imitate the economy now enforced by the producers in their engineering practice." (Extract from the address of Geo. Otis Smith at the Mining Congress Convention.)

OPERATORS SLOW TO FOLLOW THEORY OF OIL OCCURRENCE

"It is now over thirty years since Dr. I. C. White first advocated his anticlinal theory of the deposition of oil and gas. Practical operators have been very slow to take full advantage of this important theory. No doubt their reluctance or failure to adopt it in guiding them in the search for new pools, and in developing known deposits, was due to a lack of full understanding of the application of the theory. The most common belief seemed to be, that to be correct, the theory should prove universally successful in its application. It is a common trait to expect too much of any new theory stepping out in advance and upsetting the equanimity of established practice, especially among men who have gained their knowledge by the sweat of their brow and long years of hard, practical operation." (Extract from address of J. C. McDowell at the Mining Congress Convention.)

COOPERATION MEANS HIGHEST POSSIBLE RECOVERY OF COAL

"Much of our very best bituminous and semi-bituminous coals, as well as anthracite, have been lost through methods that must be deemed wasteful in the light of present knowledge, but which under the circumstances could not be avoided. It is not through reckless competition, but through properly regulated cooperation that the highest possible recovery may be obtained, waste in mining, preparation, distribution, and utilization, reduced to a minimum, the public adequately served and protected, labor receive its just reward and capital a fair return." (Extract from address of E. W. Parker at the Mining Congress Convention.)

LAW SHOULD STIMULATE PROSPECTING, VAN WAGENAN HOLDS

"A mining law has for its purpose the attainment of two ends, namely, to secure the discovery of mineral deposits, and to encourage their development. The first has to do with the occupation of prospecting, while the latter is a matter of mining engineering. As mines cannot be developed until they are discovered, it seems clear that the paramount purpose of such law must be to stimulate the activity of the prospector." (Extract from address of F. W. Van Wagenan, at the Mining Congress Convention.)

Effect of Idle Mines

"Even with the average low resource cost of bituminous coal, the state of competition that is tied up with idle and half-worked mines results in an average total cost that is little below the average selling price." (Extract from the address of Geo. Otis Smith at the Mining Congress Convention.)

DANGEROUS PRACTICES SHOWN IN PHOTOGRAPHS

The exhibit made by the Bureau of Mines at the Mining Congress Convention was precise as well as practical. The feature of the exhibition particularly worthy of mention was a set of 200 underground photographs illustrating dangerous practice, with its results, and proper practices in bituminous coal mining. Fifty of the most common accidents were pictured in a series of from two to five photographs each. The set of pictures was made by the Bureau in cooperation with the Ellsworth Colleries Co.

A set of photographs and diagrams illustrated "rock dusting" in bituminous coal mines and the applicaton of rock dust barriers. A set of metal and coal mine accident statistical charts and charts showing the growth of the rise of permissible explosion and of electric mine lamps was exhibited. The following is a list of the apparatus displayed:

Fleuss Prato oxygen miners' rescue apparatus.
Draeger (by-pass) oxygen miners' rescue apparatus.
Fleuss one-half hour breathing apparatus.
Bureau of Mines oxygen resuscitator.
Surgeon's emergency chest.
Bureau of Mines first-aid cabinet for miners.
Mine air sampling outfit.
Coal sampling outfit.
Burrell gas detector.
Approved safety lamp.
Set of approved electric mine lamps.
Canary bird—carbon monoxide detector.
Map of United States showing field activities of the Bureau.
Floor plan and elevation of new all-steel mine rescue cars under construction.
Set of the Bureau's publications.

GAS TIGHT ROOFS URGED TO LESSEN FIRE HAZARD

"The most effective means known of reducing the fire hazard of oil in steel storage would be the equipment of all steel tanks with gas-tight steel roofs, properly vented, so as to eliminate any possibility of back-firing. All steel tanks and pipe lines connected to them should be thoroughly grounded electrically. The wooden roofs at present in use on steel tanks may be greatly improved by the addition of a substantial metallic sheathing, making good gas-tight electrical connection with the shell of the tank, thoroughly grounding the tank electrically, and making the roof gas-tight. The electrical connection between the metallic covering, over the wood, and the shell of the tank, may be made by bringing the sheathing over and under the angle iron at the top of the shell. This joint should be made gas-tight by means of caulking or a suitable material used as a gasket. The top angle should be tightly caulked to the shell, using additional rivets where necessary." (Extract from address by Garrett B. James at the Mining Congress Convention.)

A CARTOONIST'S CONCEPTION OF WALTER DOUGLAS
The Mining Congress's New President

"OPPORTUNITY" AND "RESPONSIBILITY" MUST GO HAND-IN-HAND

"In this present moment the two words that seem to have made the deepest impress upon our minds are 'Opportunity' and 'Responsibility.' And let us not forget for a single moment that we cannot own the one and disown the other.

"Usually, in the affairs of nations, as of individuals, opportunity knocks but timidly. But with us the knock of opportunity is so imperious that it fairly batters down the door." (Extract from address of C. L. Dering at the Mining Congress Convention.)

LABOR TROUBLES STOP MINES IN SOUTHWEST

An official report to the Federal Reserve Board from the Dallas bank says:

"The copper industry continues active and the mines of west Texas and Arizona are running on full time. The coal mines of Oklahoma and west Texas, however, have suspended operations temporarily on account of labor disturbances. Reports from the New Mexico coal mines indicate that scarcity of labor is causing difficulty in filling orders. Demands are extraordinarily heavy."

LIGNITE GOOD GAS PRODUCER BUT HAS SOME DRAWBACKS

There are two extensive lignite fields in the United States. One occupies the western half of North Dakota, the northwestern corner of South Dakota, and the extreme eastern part of Montana; and the other occupies a wide belt across Texas and the other Gulf States.

The lignite beds of North Dakota and Montana are very extensive, both as regard thickness and geologic distribution. The exact number of beds has never been determined, but it seems probable that over most of the field in that region there may be from six to twelve, ranging in thickness from 4 to 35 feet. In the Texas field the beds are not known to be quite so thick, nor to underlie quite so large an area. Many of those that are worked range from 4 to 10 feet in thickness, and there is every reason to believe that the beds are much more extensive than present development indicates. It has been estimated that in the States of Oklahoma, Texas, North Dakota, South Dakota, and Montana there are at least 1,000,000,000,000 tons of lignite in beds over 3 feet in thickness.

There is considerable difference in the quality of the lignite of the two regions above mentioned. That of the northern region is largely composed of logs of wood, which still retain their shape, though reduced to the condition of true lignite. It contains when mined about 40 per cent of moisture, which, of course, soon evaporates in a dry climate; and the lignite on shrinking cracks badly, soon falling to pieces. The Texas lignite is not nearly so woody in its composition, apparently being composed mainly of small fragments of plants such as seeds and spore-cases. Much of it shows no trace of woody structure, and resembles ordinary brown clay. The Texas lignite is a somewhat better fuel than that from the northern region, being a little more like cannel coal, that is richer in bituminous matter. It, however, contains a heavy percentage of moisture, usually about 35 per cent when mined, and slacks in much the same way as the lignite from the northern fields.

On account of the heavy percentage of moisture and the slacking when this moisture is evaporated, it will not pay to ship this lignite to any great distance; and when it is shipped it must be protected from the weather by shipping in box cars. It also is of lower fuel value than ordinary coal and hence requires a larger grate surface to give the same amount of efficiency. With specially constructed furnaces, it makes a fairly good steaming fuel, and answers very well for domestic purposes. It has been used as a fuel for the manufacture of producer gas, and in tests carried on by the Geological Survey at the St. Louis Exposition in 1914 it was found that, by the aid of a producer and a gas engine, greater efficiency could be obtained from North Dakota lignite than from the very best steaming coal of West Virginia, used under an ordinary boiler and steam engine. Lignite has also been used for the manufacture of briquets. It is possible to make briquets of this material even without a binder, but so far as experiments have gone, the cost of manufacture is greater than the value of the briquet after it is manufactured. Lignite also has another feature which detracts greatly from its value as a fuel, that is its liability to spontaneous combustion, especially after it has slacked down or when it has been crushed to small fragments. In this condition it will take fire very readily, especially after a rain.

EVERY EFFORT MADE TO ELIMINATE REFUSE FROM COAL

Coal is washed to reduce impurities, ash and sulphur, and thus to improve the quality of the product either for the market or for making coke.

From the time the coal is broken down in the mine, every effort is made to eliminate the refuse. Miners are penalized for loading out dirt with the coal; bone and slate are removed on the picking tables in the tipples; and those alive to the best interests of the property never miss an opportunity to reject refuse found in mine or railroad cars. The motto of the progressive companies is "a clean product."

BAD TIME TO FOLD HANDS, DECLARES DR. W. R. WHITNEY

There was never a time when we Americans could so illy afford to fold our hands as at the present.

"May it not be that we are in a state of coma, induced by superficial prosperity and prolonged by the relatively scattered and disorganized conditions of our more recent past? For apparently good resaons, we have of late years entered upon a policy of discouraging the growth of corporations, of stranding the railroads, and of forcibly stopping large water power developments, and now we learn from the press that Germany and England are busy bringing about the union of competing manufacturing companies in order to strengthen home industry. England is planning a system of general industrial research to generally assist her manufacturers after the war. The scientific and engineering societies of Germany are banding together under a single president so as to render their cooperation more effective. These peoples are becoming aware of their power when acting collectively and of their dependence upon and interest in national undertakings to an extent unthought of a few years ago.

"Can we not in some way, without the pressure of war or the force of immediate necessity, determine by fair means and by enlightened public opinion the best policies to pursue in our many debated difficulties?" (Extract from the Mining Congress Convention paper of Dr. Willis R. Whitney.)

SEATTLE CHOSEN AS SITE FOR MINING EXPERIMENT STATION IN NORTHWEST

In Addition Bureau of Mines is to Undertake Cooperative Work with University of Idaho at Moscow and with the Oregon Bureau of Mines at Corvalles—Seattle Station to Serve Southern Portion of Alaska

Seattle has been selected by the Secretary of the Interior as the site of the mining experiment station for the Northwest. This decision was made on the recommendation of Van H. Manning, director of the Bureau of Mines. Mr. Manning, in company with F. G. Cottrell, chief metallurgist of the Bureau and Dorsey A. Lyon, who is to be in charge of the station, visited all the cities applying for this station and collected a large amount of data which was presented in support of the claims of the individual cities. After close consideration had been given to all facts presented, Mr. Manning, Mr. Cottrell and Mr. Lyon all decided in favor of Seattle. Secretary Lane concurred with this view.

In discussing the selection of the site for the station, Mr. Manning said:

"All of the data collected upon the trip was carefully weighed and the respective claims presented by the different localities were considered. The various needs of the whole region under consideration, especially in regard to interrelationship of its various parts, were modified and broadened by this careful study of the representations made by those best acquainted with the industry in each center.

"It has not been an easy matter to make a final decision on the location of the station, and even now the final decision is to a large extent based upon assumption as to the future policy with regard to the location of other stations, and the extension of a less formal cooperation to other existing institutions in the general region under consideration.

"As the result of careful consideration of the data collected regarding the problems to be undertaken and the facilities for cooperation offered in each case, I felt impelled to recommend that the station be established at Seattle, Wash., in cooperation with the University of Washington and that in connection with the work of this station, cooperation also be carried on with the University of Idaho at Moscow and with the State Bureau of Mines at Corvalles.

"The station at Seattle will be able to handle all the problems not otherwise provided for at the other stations by cooperative work, and also will take care of the problems which are met with along the southwestern and southeastern coasts of Alaska. By locating the station at Seattle, it will be possible to lay special emphasis upon electrometallurgical work, which is a matter of great importance, not only to the northwestern part of the United States, but to all the Alaskan coast as well.

"The establishment of these metallurgical experiment stations constitutes one of the most constructive steps that has been taken by Congress in the upbuilding of our mineral industry.

"It is a most deserved recognition of an industry which now has a yearly output of probably two and one-half billion dollars and which is next to agriculture in its importance to the welfare of the country. The experiment stations come to the West at a time when they are peculiarly needed. The great impetus which has been given the industry through the European war and the coincident development of the so-called oil flotation process in the utilization of the lower grade ores have emphasized the necessity for such research aid as only the Federal Government can give. With the development of metallurgical processes, many of which are now under way, I expect in the near future to see a much greater industry, enjoying greater prosperity and employing more men, with the utilization of the low-grade mineral deposits to their highest extent. Already there are signs that this is coming. Old mines are being reclaimed, abandoned dumps, which contained supposedly worthless material, are being worked over, and many prospects that heretofore were not considered workable are being turned into substantial mines."

At the Chicago convention of the American Mining Congress, Sidney Norman read this message to the Congress from the Northwest Miners' Association:

"Knowing the great part played by the American Mining Congress in the successful fight for recognition of the mining industry by establishment of the Bureau of Mines, your delegates call attention to the adverse criticism aroused in the Northwest by some unfortunate circumstances concerning location of the Northwest Mine Station. We believe that this is a subject that might properly be discussed at length, in order that conclusions may be drawn that would tend to remove prevalent friction and thus restore the high opinion formed of the Bureau under the ideals that have governed its conduct in the past.

"Spokane does not appear here as a contender for that honor. It does, however, ask the aid of this convention in furthering any legitimate plan

that will insure location of that site at some point in close tough with the great Coeur d'Alene and other districts in northern Idaho, western Montana and eastern Washington. The isolation of the station at a point far removed from these districts would defeat the very object it is intended to attain and would at the sane time destroy the growing value and influence of the Bureau."

BITUMINOUS TRADE BETTER THAN IT HAS BEEN SINCE 1903

Discussing the situation in the Cleveland district the manager of the Federal Reserve bank reports to the board here as follows:

"So far as price and demand are concerned the bitumious coal trade is in better condition than it has been since the anthracite strike in 1903. The companies, however, are hampered in making deliveries owing to scarcity of railroad equipment, both cars and motive power, as well as inability to obtain sufficient labor. There is a tremendous shortage of coal in the Northwest. Prices at the mine have been from $2.15 to $3.50 per ton, and show the excitement which prevails in the market. It is reported that some industrial concerns have been forced to use their storage coal which is carried from year to year for emergencies. Furnace coke demand is in excess of the supply. Crude oil and gas operators are more active even than early in the spring when oil reached $2.60 a barrel."

FAY'S STATISTICAL WORK IS COMPLIMENTED HIGHLY

An unusual tribute has been paid to A. H. Fay, statistician of the Bureau of Mines, by Frederick L. Hoffman, statistician of the Prudential Life Insurance Company. Mr. Hoffman is regarded as a pioneer in the collection of accident statistics. Referring to Mr. Fay, Mr. Hoffman said:

"I would like to express my very high regard for the work that Mr. Fay has done. Mr. Meeker has properly said that getting out statistics and doing the right kind of statistical work was just as important information as digging in the ditches and getting out the coal. Mr. Fay is the first man in this country to make order out of chaos. Until the Bureau of Mines took up this work the so-called statistics of the mining industry were always a delusion and a snare. Today our mining accident statistics are not only the equal of any foreign statistics, but they are very much better. They give us much more detailed information in a thoroughly digested form. With indefatigable industry he has dug out all the reports for forty-four years, and he has brought them all together in a manner that those of us who have tried for years and years to do, but have absolutely failed to accomplish. It is true he has had the cooperation of everyone, but he could not have had that cooperation if he had not been self-sacrificing and as efficient as he has been, and yet that man today has not even a real title to the position nor the proper status that his work entitles him to. The United States Labor Commissioner, in his field, has not been anywhere nearly as successful in bringing about the cooperation in labor statistics as Mr. Fay has brought about in mining statistics. All over the country every mine inspector cooperates with him, giving greater efficiency to the Bureau of Mines. In season and out of season he is working to bring about cooperation between the Federal Bureau and the State Bureaus. That must be brought about. We must have better cooperation.

"Absolute accuracy is not necessary. It is not even desirable, because the cost of absolute accuracy exceeds value. If you are going to put too heavy a strain on the mining companies for statistics, they will not do the work for you; they cannot do it. They must be taught the limitation of statistics, that you cannot prove all things that you would like to prove by means of these statistics.

"Now, take the question of shaft accidents. You can sub-classify shaft accidents to the extent of several pages, comprising all the things that might happen. I, at one time, tried to make up some statistics of men killed in mines. You would never have thought of it, but every year we killed a dozen men by icicles dropping down the shaft. That is a very important matter. I do not know in the matter of shaft accidents that there is a more important duty than for the man on the cage to see to it that no ice forms in the shaft. There is always water running down, and in the winter time it is freezing, and these heavy icycles used to fall down the mine and kill a man every once in a while. That is just a minor matter, apparently. You can bring that all out if you follow up the work that Mr. Fay is doing, by classifying each accident in detail. I would like to emphasize the work that Mr. Fay is doing in the Bureau of Mines, which I think is entitled to the highest appreciation."

GOVERNMENT SERVICE NEEDS POLICY AS TO PATENTS

"A foremost need at present would seem to be the definite location of responsibility for the study and gradual development of a comprehensive and consistent system of administration of the whole subject of patents within the government's own service.

This guiding and unifying element between the different departments should be permanent in its character and organization, as the work must constantly develop and maintain a thoroughly up-to-date and helpful relation to the industries. The fundamental aim of government patents need be in no sense that of destructive competition with private enterprise, but on the contrary, should be to aid, encourage and stabilize the latter by supplying some of the connecting links for whose early development it might be particularly hard to secure private backing, even though the final result was of recognized public benefit." (Extract from F. G. Cottrell's address at the Mining Congress Convention.)

WITHDRAWALS AND RESTORATIONS

A summary of the principal withdrawals and restorations during the period, March 4, 1913, to October 31, 1916, in acres is as follows:

	Outstanding withdrawn March 4, 1913	*Withdrawn during period*	*Restored during period*	*Outstanding withdrawn October 31, 1916*
Coal	65,410,464	668,664	20,645,002	45,434,126
Oil and gas	4,817,706	1,656,064	692,397	5,781,373
Phosphate	3,367,378	489,601	1,350,581	2,506,398
Potash	133,829	211,384	214,584	130,629
Power site	1,857,258	744,926	194,220	2,407,964
Public water	86,216	112,594	2,702	196,108
Total	75,672,851	3,883,233	23,099,486	56,456,598

FIRST-AID TRAINING HAS USES OUTSIDE OF MINES

An engineer of the Bureau of Mines reports that his training in first aid possibly saved the life of his three-year-old son. The boy attempted to crawl downstairs while ill, and fell. His father reached him about 10 or 15 seconds after he fell and he was not breathing. He shook the boy and slapped him on the back to start his breathing, but this treatment did not succeed. He then placed the boy on his stomach on the floor in the position recommended for the Schaefer treatment for artificial respiration, The boy's jaws were forced open with difficulty, when his tongue fell forward and almost immediately his throat seemingly cleared, and he soon took a deep whistling breath. After a few seconds he took another breath and became conscious.

It is probable that when he fell he struck the back of his head, which caused his tongue to fall back into his throat and prevented his breathing. The time that elapsed after he fell until he took his first breath was estimated to be 1½ to 2 minutes. His lips had become quite blue and his body, with the exception of his jaws, quite limp, therefore his recovery was probably due to the prompt treatment. He was placed under the care of a doctor for a day or two and regained health rapidly.

WAGES REPRESENT HALF OF THE COST OF COAL

"Should you be interested in summing up the various costs and striking a balance between labor's share and capital's return, you would find that the mine worker, the trainman, and the wagon driver together receive fully half of the price of the anthracite delivered at your house, and the same three classes of labor receive not less than half the price paid by the average consumer for the cheaper soft coal."(Extract from the address of Geo. Otis Smith at the Mining Congress Convention.)

WASTE HAS INCREASED AS PRODUCTION ADVANCED

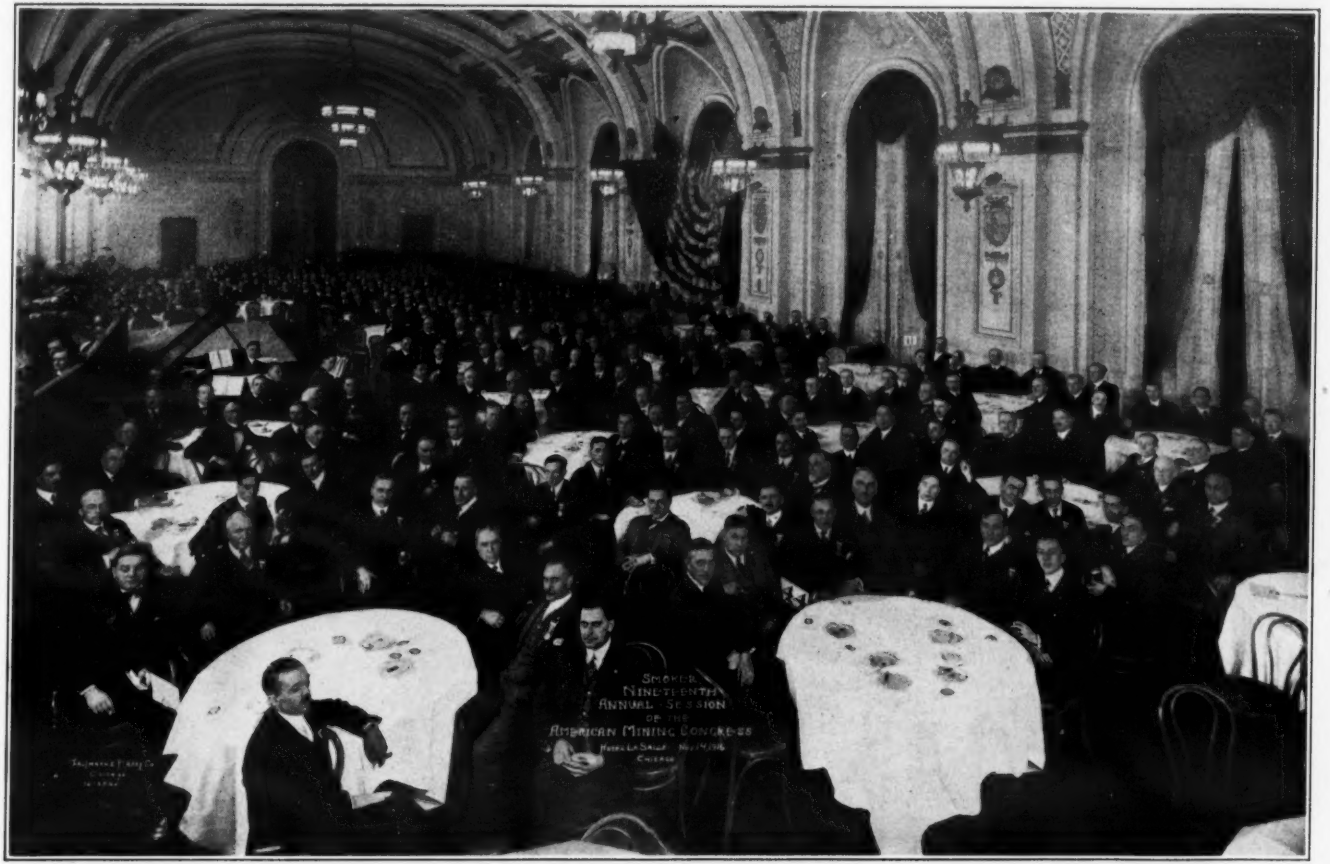
"Increase in production has been accompanied by unparalleled waste, in both the production and utilization of our mineral wealth, and altogether too little regard for the health and safety of the men whose labor converted the natural resources into the commercial products. A people of restless energy, individualistic, eager for immediate success, and having little regard for the lessons of the past, we have indulged in an orgy of hasty exploitation, with the result that already we are nearing the limit of maximum production of some minerals." (Extract from address of Van H. Manning at the Mining Congress Convention.)

DISAGREE AS TO INFLUENCE OF MINE WORKERS UNION

E. H. Weitzel, of the Colorado Fuel & Iron Company, made the point in the Uniform Mine Legislation section that it was difficult to enforce discipline among members of the United Mine Workers. Seemingly, he said, the members of this order feel that the authority of the company is not final, which in many cases results in a serious interference with efficiency.

This statement was challenged by Mr. Harlin, of the United Mine Workers, who said: "If Mr. Weitzel's company had displayed the right kind of spirit in getting acquainted with the position of the United Mine Workers in this matter, he would be more competent to express an opinion. The United Mine Workers are ready to aid in every possible way the rigid enforcement of safety laws. Even a superficial knowledge of the record of our organization is sufficient to show that we have gone more than half way at all times in the matter of cooperation.

J. Dalrymple, chief mining inspector of Colorado, advocated that mine foremen be held responsible for the setting of timbers in mines. He urged that the mine foreman have authority to remove from the mone any employe disregarding safety practices.



MINING CONGRESS SMOKER, NOVEMBER 14

PRESENTATION OF WATCH TO CARL SCHOLZ FEATURE OF CHICAGO BANQUET

Social Portion of Mining Congress Convention Program Was Highly Successful—Six Hundred Guests Join in Singing Old Time Songs at Smoker—Judge Short and Col. Pope Speak at Banquet

Coupled with the important business transacted at the Chicago Convention of the American Mining Congress were several pleasant social features. The more important of these was the banquet held in the ball room of the LaSalle Hotel on the night of November 16. It was on this occasion that the members of the Mining Congress presented Carl Scholz, the retiring president, with as fine a product of the watch makers' art as money could buy. Mr. Scholz has served three terms as president of the American Mining Congress and during that time has been an indefatigable worker in its interest. He has done much to increase the usefulness of this organization which is now exerting a national influence recognized by all who mine, as was testified to by so many of those who attended the convention at Chicago.

The presentation of the watch to Mr. Scholz impressed all those who saw it. Mr. Scholz had started to deliver his farewell address. Before he had proceeded far he was interrupted by E. W. Parker, of the Anthracite Bureau of Information, who quite to Mr. Scholz' surprise began a rambling talk, the theme of which was "time." Mr. Scholz had no idea that a gift was forthcoming and his perturbation was the source of considerable amusement as Mr. Parker rambled on in his talk about "time." He even recited poetry with a bearing on time. Finally Mr. Scholz turned to the toastmaster and whispered if by any chance Mr. Parker had departed from his policy of total abstinence. As nearly every one present, judging from Mr. Scholz' expression and possibly by reading his lips, could divine the nature of the question it was with greatest difficulty that those at the banquet tables suppressed the desire to burst into laughter. Finally Mr. Parker drew to a close his dissertation on "time" and presented the watch. The utter surprise of Mr. Scholz brought forth a great demonstration from those assembled. The applause continued for several moments. Mr. Scholz attempted to thank the members of the Congress for their gift but words failed him.

In response to toasts Col. George Pope, of the National Manufacturers' Association, and Judge Frank H. Short, of Fresno, Cal., spoke interestingly. Col. Pope pointed out the intimacy of the relationship which exists berween the miners and manufacturers. Judge Short built his discourse on the following parable:

"Uncle Sam being the father of four sons, and so that we would have our history and our geography straight, we will call them East and North and South and West, and Uncle Sam being a good father, generous, perhaps, to a fault, proceeded to distribute to his three elder sons, East and North and South, all of that portion of the estate that went to them and their children. Whether he did it wisely or unwisely we don't know, but that he did it we cannot deny. And that portion of the estate that fell to the younger brother, West, was not supposed to be worth a very great deal, being mostly deserts and mountains and wilderness and all that sort of thing. But West was quite an industrious fellow, inclined to exploration and all that sort of thing, and he began to demonstrate that by taking those wonderful rivers that head in those real mountains and traverse real valleys into the world's most majestic sea, by the development of the power and the distribution of water it began to look that the inheritance of the younger brother, West, was really pretty near one-quarter of the estate, and it was about that time that a great idea of regeneration and moral uplift seized the minds of East and North and South. And the more they thought about it the worse they felt about it, and finally they went to Uncle Sam and said, 'Father, in the distribution of that portion of your estate which you have distributed to us and to our children you have sinned against heaven and in the sight of all men and have greatly impaired the family estate. The only recompense that we can suggest and the only atonement is that you take, seize and hold that portion that was supposed to belong to the younger brother for the benefit of the whole Sam family.'"

Much of the success of the banquet was due to George T. Buckingham, the toastmaster. Mr. Buckingham with his eloquence and wit added materially to the enjoyment of the evening.

Much credit is due the management of Hotel LaSalle for the success of the banquet, the smoker and the arrangements for the convention in general. The facilities of the hotel were

generously placed at the disposal of the Mining Congress.

The menu served at the banquet follows:

TOMATO FARCIS, VANDERBILT

CLEAR GREEN TURTLE, EN TASSE
CELERY SALTED ALMONDS OLIVES

BROOK TROUT, AU BLEU
POTATO PERSILLADE CUCUMBERS

BROILED SWEETBREADS ON TOAST
GREEN PEAS, BONNE-FEMME

ROAST JUMBO SQUAB, AU CRESSON

SALAD—LA SALLE
CHATELAIN DRESSING

FRESH STRAWBERRY SOUFFLE ALASKA
ASSORTED CAKES

DEMI-TASSE

"Fair and Warmer" Cocktail
Imported Cigars
Cigarettes

More than 600 men occupied places at the tables which filled the great ball room of the Hotel LaSalle on the night of November 14 when the members of the Mining Congress and their guests met at a smoker. While the refreshments were being served a very capable troupe of entertainers added materially to the success of the convention. One of the features of the smoker was the singing of old-time songs by all present. Aided by the musical director and orchestra those present made the place ring with such songs as: "Hail! Hail! The Gang's all Here"; "Don't Bite the Hand That's Feeding You"; "Rings on My Fingers"; "Oh, You Beautiful Doll"; "Dixie"; "The Star Spangled Banner, and "Hello, Hawaii, How Are You."

While the members of the Congress were enjoying the smoker their wives were entertained at a theater party.

USE OF PERMISSIBLE EXPLOSIVES INCREASES RAPIDLY

"The Bureau of Mines has been responsible for a revolutionary change in the use of explosives in coal mines. It pointed out the dangers attending the use of black powder in mines that were gaseous or filled with coal dust, and urged the substitution of what it termed 'permissible explosives,' those that had successfully passed severe tests. In the year 1906 only 2,000,000 pounds of these permissible explosives were used in the coal mines of the United States. In 1915 the amount of permissible explosives sold was 27,360,000 pounds, or nearly fourteen times as much as in 1906." (Extract from address of Van H. Manning at the Mining Congress Convention.

GOVERNMENT REGULATION OF COAL PRICES MAY COME

"Study of present conditions in the coal mining districts fails to encourage the idea of governmental operation of the 7,000 coal mines in this country. More in line with the trend of public sentiment in the last decade, however, is governmental control in the interest of the consumer by regulation of prices, and to judge from the facts of experience in the regulation of transportation of other public utilities, the public coal commissions will be given sufficient discretionary powers to safeguard the interests of producer and consumer alike, and even mandatory requirements, either legislative or executive, will be subject to judicial review." (Extract from the address of Geo. Otis Smith at the Mining Congress Convention.)

MEMBERS OF MINING CONGRESS PRAISE SCHOLZ AND CALLBREATH

Tribute was paid by members of the Mining Congress to the retiring president, Mr. Scholz, and to the secretary, James F. Callbreath, at a members' meeting held during the Mining Congress Convention. The fact that as busy a man as Mr. Scholz would take a portion of his time toward forwarding cooperation among those connected with the mining industry was the theme of those who commended him.

The large amount of work which has been done by the Mining Congress with a very small amount of money is one of the accomplishments of Mr. Callbreath's work, which was complimented.

The establishment of a Bureau of Mining Economics, modeled after the Bureau of Railway Economics in Washington, met with favor at the members' meeting.

THINKS THE COAL INDUSTRY WELL MAY BLAME ITSELF

"The Coal Industry of this country does not occupy that position which it should in the Industrial World. And there is no one to blame, except those who are engaged in that industry, and it remains for the operators and miners through their own efforts to make out of the industry that which they are entitled to." (Extract from address of Thomas M. Gann, at the Mining Congress Convention.)

NO REWARDS OFFERED FOR DISCOVERY OF MINERALS

No reward has ever been offered by the United States Government for the discovery of a tin, nickel or any other metallic deposit. Numerous inquiries are reaching Washington with regard to such a reward. It is thought probable that publication has been made of some fanciful tale of a bonus being offered for the discovery of these metals.

COKING OF ALL COAL WILL MEAN A CLEANER NATION

The close relation between coal, shale, peat, oil and gas, was brought out with singular clearness by Dr. W. F. Rittman in an address before the oil section, at the Mining Congress Convention. He showed how benzine toluene, etc., are the bases for the manufacture of practically all dyes and explosives. While coal as such does not contain benzine and toluene, these materials are formed in the distillation process, and can be made from any one of the other materials. An all-coal source for artificial gas must be found, Dr. Rittman declared. He believes it is well within the range of possibility to enrich the gas from the by-product oven.

Dr. Rittman predicted the general use of smokeless fuel within the comparative near future. While all the volatile matter will not be removed in the partial coking of this fuel, it will be reduced to 6 or 10 per cent. He believes means will be found for the coking of any kind of coal, which he said will mean a cleaner nation.

"The total amount of money appropriated by the Federal Government in behalf of agriculture for the present fiscal year is $35,553,852.

"The total amount of money appropriated by the Federal Government for this year for mining is $2,333,075. This includes the total appropriations of the Bureau of Mines and the United States Geological Survey.

"The per captia contribution of the people for the betterment of agriculture is 34 4-5 cents.

"The per capita contribution of the people for the betterment of mining is 2 3-10 cents.

"The gross value of all agricultural products in the year 1915, as estimated by the Department of Agriculture, is $10,501,636,000.

"The gross value of all raw mineral products for the year 1916, as estimated by the United States Geological Survey, is $2,373,000,000.

"The per capita production of agriculture is $102.94.

The per capita production of mining is $23.26.

"While the value of the agricultural production of the country is less than five times that of the mineral production, the mineral production, the per capita appropriation for agricultural investigations is fifteen times the per capita appropriation for mineral investigation." (Extract from the Mining Congress Convention Address of Van H. Manning.)

A CARTOONIST'S CONCEPTION OF
COL. GEO. POPE
at the Mining Congress Convention

MINING NOT SO WELL ORGANIZED AS AGRICULTURE

"Mining is becoming better organized, and a number of organizations, notably the American Mining Congress, are now working in its behalf, but we have much farther to go to reach the stage of organization attained by agriculture." (Extract from address of Van H. Manning at the Mining Congress Convention.)

ADEQUATE ACREAGE NECESSARY TO CONSERVATION OF OIL

"If you would prevent waste of oil and natural gas, if you would do away with careless drilling methods, excessive production charges and storage losses, if you would insure the production of the maximum amount of oil at the minimum cost, if you would help to maintain a reasonable price for petroleum and its products in the years to come; then do your part in creating a public sentiment in favor of adequate acreage. If you take one step toward imbedding the acreage idea in the popular mind, or incorporating it into State legislation, or embodying it in oil-field practice, you will have assisted in conserving the oil and gas deposits of the United States, and will have rendered a valuable public service." (Extract from address of Max W. Ball at the Mining Congress Convention.)

Only One Settlement Possible

"This oil question cannot be settled until it is right, and such a settlement cannot be made which does not protect the interests of those who entered upon the lands in good faith and developed the property by discovering oil" (Extract from address of Roy A. Bishop at the Mining Congress Convention.)

HOLD MEMBERSHIPS IN MANY SCIENTIFIC SOCIETIES

Members of the Bureau of Mines staff have membership in scientific societies as follows:

Alabama Safety Association; American Association for the Advancement of Science; American Chemical Society; American Electrochemical Society; American Institute of Electrical Engineers; American Institute of Metals; American Institute of Mining Engineers; American Iron and Steel Institute; American Mining Congress; American Physical Society; American Society of Civil Engineers; American Society of Mechanical Engineers; American Society of Social and Political Science; American Society for Testing Materials; American Waterworks Association; Botanical Society of America; British Institute of Metals; British Iron and Steel Institute; Canadian Mining Institute; Coal Mining Institute of America; Colorado Metal Miners Association; Colorado Scientific Society; Engineers Society of Northeastern Pennsylvania; Engineers Society of Washington; Engineers Society of Western Pennsylvania; Frieburg Geol. Geschellschaft; Geolcgical Society of America; Geological Society of Washington D. C.; Illinois Academy of Science; Illinois Mining Institute; Illinois Society of Engineers; Indiana Academy of Science; Institute of Mining and Metallurgy (London); Institute of Mining Engineers (Great Britian); International Congress of Applied Chemistry; International Engineering Congress; Kentucky Mining Institute; Lake Superior Mining Institute; Mine Inspectors Institute of America; Mining and Engineering Society of Alaska; Mining and Metallurgical Society of America; National Conservation Society; National Geographic Society; National Safety Council (includes N. M. S. A.); Natural Gas Association; Pittsburgh Smoke Abatement League; Rocky Mountain Coal Mining Institute; Society for the Promotion of Engineering Education; Society of Tennessee Mine Foreman; Southwestern Mine Safety Association; Washington Academy of Science; West Virginia Coal Mining Institute; Western Society of Engineers; Wyoming Society of Civil Engineers.

MUCH ENERGY WASTED IN RETAILING OF COAL

"It has been said that it costs more to deliver a quart of milk in the city of New York than it does to get it from the cow to the city. What can be more illustrative of useless expense than half a dozen or a dozen milk wagons from as many different establishments delivering milk in one city block? Delivery of coal is not exactly akin to delivery of milk, for one coal cart cannot deliver 50 to 100 tons of coal as a milk wagon delivers that many quarts of milk, but there is just the same more waste energy in the retailing of coal than in its mining, preparation, or transportation, or possibly all of them put together." (Extract from address of E. W. Parker at the Mining Congress Convention.)

A CARTOCNIST'S CONCEPTION OF
GEO. H. CROSBY
at the Mining Congress convention

RESPIRATION RESTORED BY UNIQUE METHOD

A surgeon in one of the Southern coal producing States, recently invented a new method of establishing respiration by reflex action. He had been using ordinary methods for several hours and was barely keeping the patent alive, although he had worked very hard. Happening to see a comb on a dresser, near the bed on which the patient lay, he took it and drew it smartly across the nose, the teeth of the comb coming into contact with the septum between the nostrils. The patient at once began to breathe and his respiration soon became normal. It was necessary to repeat the operation several times, but the patient finally recovered.

Only One Excuse

"The only reasonable excuse that the Navy can give for desiring to appropriate the land in the possession of the oil men is that the property has already been developed, and producing oil wells drilled at an expense of millions of dollars are upon the land ready for use." (Extract from the address of Roy A. Bishop at the Mining Congress Convention.)

Rises from 60 cents to $11.65

Tungsten (powder) sold as low as 60 cents a pound a few years ago. In 1915 ferro-tungsten reached $8.50 and in 1916, $9.75 for the contained tungsten. Powder was not greatly different but a little was sold as high as $11.65.

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DECEMBER, 1916

FINISHED MATTE AT SUDBURY CONTAINS 55 PER CENT NICKEL

In a publication entitled "Some Notes on the Mines and Smelter of the Canadian Copper Company, Copper Cliff, Ont.," prepared for the Twelfth International Geolcgical Congress, the following notes are given about the reduction of the nickel-bearing pyrrhotite of Sudbury, Ont.:

"To understand the smelting operations, it must be premised that copper and nickel matte smelting is entirely opposite in its principle to the blast furnace treatment of iron ores. In the iron furnances, the operation is conducted in a reducing atmosphere, with the intention of reducing all the iron present to metallic form and preventing its passage into the slag. In copper and nickel smelting, on the other hand, the operation is conducted in a strongly oxidizing atmosphere, with the intention of driving as much as possible of the iron into the slag, and saving only the copper and nickel with sufficient sulphur to prevent their oxidation. Copper and nickel combine with sulphur in the blast furnace to form what is known as matte. This matte contains iron in amounts which vary inversely with the amount of oxidation attained on the roast yard and in the blast furnace. If the ore is roasted to 10 per cent suplhur, the furnace matte may contain 30 to 40 per cent copper nickel, and from 40 to 30 per cent of iron, while if the ore is roasted to about 14 per cent sulphur, the furnace matte may contain only 18 to 20 per cent copper nickel, with about 50 per cent iron. It is evident that if the ore is poorly roasted, the oxidation attained in the blast furnace must be relatively greater than is necessary with well roasted ore. This furnace oxidation is attained by the addition of quarts in the blast furnace. This quartz prevents the rapid smelting of the ore, and by holding it in the blast furnace, under the influence of a powerful blast of air, allows the oxidation of about 50 per cent of the sulphur and iron, contained in the roasted ore. The iron oxide formed on the roast yard and in the blast furnace, combines with the quartz to form a slag which contains about 55 per cent iron oxide, in the form of silicate of iron. This silicate of iron can often be found in crystalline form on the slag dump.

Limestone is used as a flux only when the furnaces are in poor condition. The addition of a lime base to the slags lowers their melting point, and thus allows the cleaning of accretions from the sides of the blast furnace. In certain cases, when the ores are very rocky and particularly if much aluminium is present, the addition of a small amount of limestone to the charge is indicated.

. . . . . .

The melted products flow continuously from the furnace into an oval brick-lined settler. In this settler the matte separates from the slag, ... The slag runs continuously from the settler into pots, which are taken to the dump. The matte is tapped from the bottom of the settler into pots and transferred to the converter building. This furnace matte contains about 6 per cent copper, 16 per cent nickel, 47 per cent iron and 27 per cent sulphur. It is treated in the converter department by blowing air through it to convert the iron into iron oxide, which iron oxide, as fast as formed, unites with quartz or mine rock, which is placed in the converters as a flux. The continuous blowing of air through the matte, and the continuous removal of the iron in the shape of converter slag, removes the iron from the matte and leaves a final product containing about 80 per cent copper nickel, with about 0.5 per cent iron and 19 per cent sulphur, which is known as Bessemer matte.

The converters are cylindrical iron vessels, 37 feet long by 10 feet diameter, lines with magnesia brick and capable of rotation on a horizontal axis. A slot shaped opening in the front of the converter allows the slag to be poured off as desired.

The finished matte, which contains 25 per cent copper, 55 per cent nickel, 0.5 per cent iron and 19 per cent sulphur, is cast into slabs, broken by hand, loaded into box cars and shipped to the refineries in Bayonne, N. J.

BRUTE FORCE AND HIGH SPEED ARE ADDED IN AMERICA

"I want to emphasize the necessity which confronts us of devoting greater attention to natural sciences and to the unearthing of those values of natural knowledge which nothing but mining in facts will provide. I want to see our country get out of the habit of too exclusively awaiting fundamental discoveries from abroad and merely developing them by the application of brute force and high speed." (Extract from the Mining Congress Convention paper of Dr. W. R. Whitney.)

Latest Mining Patents

Concentration of Ores, No. 1203375. This invention is by Fleury James Lyster, of Broken Hill, New South Wales, Australia, assignor by Mesne Assignments to Minerals Separation American Syndicate (1913) Ltd., of London, Eng.

This invention relates to improvements in the concentration of ores and is particularly applicable to the separation of mixed zinc and lead sulphide ores.

The object of this invention is to separate metalliferous portions of an ore such as the sulphide of lead (galena) from other portions of the ore, and more particularly to effect a differential or selective flotation in the treatment of mixed zinc and lead sulphide ores, to wit: The separation of lead and sulphide (galena) from zinc sulphide (blende), obtaining a product relatively rich in lead on the one hand, and a zinc product relatively low in lead on the other hand.

ROCK-DRILL

No. 1203284. This invention is by Daniel S. Waugh, of Denver, Colo., Assignor to the Denver Rock Drill Manufacturing Company of Denver, Colo., a Corporation of Delaware.

The invention relates more particularly to that type of rock drills in which the drill is advanced to its work by fluid pressure. In this type it is the usual practice to employ a feed cylinder and a feed piston operating therein. One of these is connected to the motor. For certain types of work it is desirable that the cylinder be connected to the motor and the piston has a rod or spur projecting from the rear end of the feed cylinder.

It is one of the objects of the present invention to employ the above described specific arrangement and to provide in connection therewith, conveniently accessible means for controlling both the supply of the motive fluid to the feeding means and the arms, and also to control the supply of the cleansing fluid.

BY-PRODUCTS FROM COAL

No. 1204647. This invention is by Harvey P. Bostaph, of Detroit, Mich.

This invention has reference to a process of obtaining coke and by products from coal, and its object is to produce coke containing such a percentage of volatile matter as to provide a smokeless fuel burning freely with a long flame, and also to produce condensable by-products of superior quality and of increased quantity.

PROCESS OF EXTRACTING METALS

No. 1204843. This invention is by Sidney E. Bretherton and Frank L. Wilson, of Berkeley, Cal.

This invention relates to a process of extracting metals of commercial value from their ores.

The object of the invention is to provide a process for the extraction of certain metals such as zinc, cadmium, copper, nickel, cobalt and other commercially valuable metals from ores containing the same.

The invention possesses other advantageous features. Any suitable apparatus may be used for carrying out the process. The process is especially adapted for use in connection with zinc sulphide ores.

CHEMICAL CONCENTRATION

No. 1204932. This invention is by Charles S. Bradley, of New York, N. Y.

This invention relates to the concentration or recovery of ore values by wet chemical methods. The invention comprises an improved method of conducting the operations of chemical concentration, apart from the specific materials or chemical reactions employed. The invention further comprises a number of improved chemical treatments which are of especial importance in the concentration of ore values.

According to this invention the operations are conducted in such a manner that the necessity for chemical analysis is largely avoided and excesses of the reagents employed may be maintained without loss, whereby complete extraction is obtained and the operations proceed with a minimum of attention and the supply of acid radical and oxygen may be readily and positively adjusted. Where metals of variable valency are to be recovered the presence of high valency compounds is highly advantageous to the extraction as they aid in the dissolving of the values and tend toward complete extraction. On the other hand, the separation of the values from the solution and their ultimate recovery in highly concentrated form may be more economically effected from the low valency compounds as these are already partially reduced.

MINING MACHINE

No. 1205076. This invention is by Albert Ball, of Claremont N. H., Assignor by Mesne Assignments to Sullivan Machinery Company, of Boston, Mass., a Corporation of Massachusetts.

This invention relates to mining machines, being more particularly intended to provide improved means for feeding and guiding a mining machine while performing the cutting operation.

ORE ROASTING FURNACE

No. 1203613. This invention is by John Harris, of Sheffield, England.

This invention relates to rabbling appliances for mechanical ore roasting furnaces of the type in which the rabblearms project into the interior of a hollow shaft longitudinally divided into channels for the conveyance of the cooling fluid to the arms, its object being to provide improvements in the means for securing the arms to the shaft and in the arrangement of pipes for supplying cooling water to the arms by the employment of which, when the arms are water cooled, the shaft itself may be air cooled with or without a forced draft and any one arm may be more easily and quickly removed or replaced without disturbing any other parts, while the same fittings may be used to secure when desired an air cooled arm to the shaft.

LIQUID SEPARATION OF IRON ORES

No. 1203897. This invention is by Arthur J. Moxham, of Wilmington, Del.

The object of this invention is to concentrate iron ore and reduce the percentage of silicious material or gangue. It has been proposed to take ore containing in its natural state combined water, organic matter or any other reducing agent, and also containing a much higher percentage of silicious material than is advantageous for use in the blast furnace, and subject the same to ordinary calcination for the purpose of driving off the combined water or other matter capable of being driven off by heating. This increases the specific gravity of the oxide of iron while the specific gravity of the silicious material is not increased. Anything increasing the difference between the specific gravity of the constituents of the ore that it is desired to separate acts advantageously in the process of separation.

CONCENTRATOR

No. 1204333. This invention is by Lynn W. Barner, of Hetland, S. D.

This invention relates to improvements in concentrators for ore separators of the reciprocating type, and particularly to improvements in the construction of the separating elements proper whereby the precious metal is separated from the material by which it is carried.

The primary object of the invention is to provide a novel construction of concentrating or separating mechanism by means of which the material is carried through a long range of travel within a comparatively small working area and subjected throughout such course to separating actions by which maximum efficiency of operation is secured. A further object of the invention is to provide a construction of mechanical concentrator or separator which is economical in construction and operation.

Aviator Carries Ad. Contract

Advertising invaded the air when Victor Carlstrom, the aviator, at the end of his Chicago to New York flight in his big biplane delivered to the New York Times an advertising contract of 50,000 lines placed by the Mahin Advertising Company, of Chicago, for the B. F. Goodrich Company, of Akron, Ohio.

SALES OF ZINC ORE ARE RUNNING AHEAD OF 1915

An official report to the Federal Reserve Board from the Kansas City bank says:

"A report recently issued shows that the joplin (Missouri-Kansas-Oklahoma) district produced 8 per cent of the total lead ore in the United States last year, the value thereof being in excess of two and one-half million dollars. The production for the first thirty-nine weeks of 1916 sold for more than the entire 1915 production. Zinc ore produced will also exceed that of 1915, the value of that sold the first forty-one weeks of 1916 exceeding the total sold last year.

"According to State estimates, Colorado's metal output for 1916 will be more than 25 per cent larger than last year, the greatest in the history of the State. New mines are still being located, old mines are being reopened, every miner in the State has work, and there is an unprecedented demand for labor at the mines.

"The complete success of the flotation process, referred to last month, is said to have been established at Goldfield, a number of deep shafts are in progress, and preparations are under way by the principal producing companies to increase their ore-handling facilities. An unusually rich body of ore has been encountered at Cripple Creek at a depth of more than 1,900 feet. It was formerly assumed that below 1,000 feet the district would be worthless in so far as the production of gold is concerned. Since the first of the year 350 new mining companies, the majority of which are liberally financed, have been incorporated to operate in this State.

"In the Mid-Continent oil field a further contraction is reported from the Cushing and Shamrock districts, the total production in the Mid-Continent field now being placed at approximately 340,000 barrels daily. The Cushing field, when at its height, alone produced almost this daily total. Lack of water for drilling has held back considerable work. Last month witnessed a decline in the number of completed wells and also in new work. October is expected to witness a gain in both completed wells and in new work, as the purchasing companies are taking all oil. Many wildcat tests are under way in Kansas and Wyoming. The development of Wyoming's oil resources is progressing rapidly."

TELLS FRIENDS NEVER TO MISS MINING CONVENTION

A very prominent mining man writes as follows concerning the two days he was able to attend the sessions of the Mining Congress Convention:

"I do not believe I ever spent two days so filled with interest or that were as instructive. I have told my friends since coming home that no one in the mining industry can afford to miss a Mining Congress Convention. I expect in the future to be a regular attendant."

LATE L. M. JONES WAS HONOR MAN IN CLASS AT COLUMBIA

L. M. Jones, the mining engineer of the Bureau of Mines, who was asphyxiated on October 20, 1916, while assisting in recovery work after an explosion at the mine of the Jameison Coal and Coke Co., at Barrackville, W. Va., was born at Cleveland, Ohio, on December 12, 1883.

On February 19, 1909, he entered the service of the Technologic Branch of the U. S. Geological Survey, taking up his residence at Pittsburgh, Pa. In 1910, when the work of the Technologic Branch was transferred to the Bureau of Mines, Mr. Jones entered the service of the Bureau and continued in the service up to the date of his death.

He was a graduate of the Columbia School of Mines and was one of the honor men of his class. His leadership of men, beginning thus early in life, characterized his last effort in a humane endeavor to save life. He was leading his men when he gave up his life.

Mr. Jones was a mining engineer of exceptional ability and had immediate charge of the experimental mine at Bruceton, Pa. In this capacity he developed many safeguards that are instrumental in saving life in the coal mines. It was at the experimental mine that the coal operators of the United States received their first real impressions of the destructiveness of an explosion of coal dust without the presence of gas and were given demonstrations as to the methods to be pursued in preventing such disasters. The fact that the death record among the miners during the last year was the lowest in the last sixteen years emphasizes the worth of Mr. Jones's efforts in behalf of the miners. Mr. Jones was an important factor in the development of more orderly and safer methods of rescue work. He died a martyr to the cause, as three other rescuers of the Bureau have died.

The roll of Bureau of Mines heroes, who have given up their lives to save others, now includes Joseph E. Evans, rescuer, killed at Throop, Pa., April 7, 1911; John Ferrell, killed at Cherry Valley mine, Cherry Valley, Pa., January 20, 1912; Edward Evans, killed at Rock Springs, Wyo., September 30, 1913; and L. M. Jones, killed at Barrackville, W. Va., October 20, 1916.

Mr. Jones left a wife and two children, and under the new Federal Compensation Act, Mrs. Jones will receive $420 a year during her widowhood, and on behalf of each of the children, $120 a year until the children reach the age of 18.

COPPER COMPANY'S PROFIT REACHES $4,000,000 IN MONTH

A report to the Federal Reserve Board contains the following statement:

"The enormous wealth from production of copper has some reflection in the large percentage of increase in deposits shown by the banks of Arizona, Utah, and Nevada. The profits of a single copper company in Utah are said to have reached $4,000,000 in one month."

A CARTOONIST'S CONCEPTION OF GEO. CUSHING
at the Mining Congress convention

RICE TO STUDY PROBLEMS IN CANADIAN MINES

The Canadian Government has made arrangements with George S. Rice, chief engineer of the Bureau of Mines, to study the dangerous phenomena caused by the presence of gas in the mines of the Crow's Nest District of British Columbia. Mr. Rice has been granted a leave of absence so as to take advantage, in a private capacity, of the offer made by the Canadian Government. The Bureau also realizes that this experience is likely to be of very great value in the solving of similar problems in American mines.

METAL MINING METHODS TO BE STUDIED CLOSELY

Roy R. Horner, a mining engineer, has been selected to take charge of the investigation of metal mining methods which is to be conducted by the Bureau of Mines. His headquarters for the present will be Salt Lake City, but it is understood that his investigation will be extended later to other portions of the country. His salary is $3,600 annually.

Steel Prices Soar

High speed steels before the European War were from 60 to 80 cents a pound, depending somewhat on the maker, and the maker's name was probably an indication of the quality. After the beginning of the war prices rose to $3.00 during 1915 and during the first six months of 1916 the price was $3.40 a pound, according to F. L. Hess of the Geological Survey.

DE FACTO GOVERNMENT OF MEXICO EXPLAINS ITS MINING DECREES

Authoritative Statement Presents Mining Situation from Viewpoint of Carranza—Thousands of Americans Intensely Interested in Decrees Affecting Their Property Rights

Considerable controversy and uncertainty have arisen among American mining men in connection with the various decrees issued by the de facto government of Mexico. Owing to the fact that the American public has several hundred millions of dollars invested in mining enterprises in Mexico, a request was made at the Mexican Embassy here for a concise statement of the situation. The following semi-official statement of the situation has been furnished THE MINING CONGRESS JOURNAL, and is published in full herewith.

Under Spanish law all minerals underneath the surface were the property of the Crown and those who exploited them were required to pay a goodly percentage to the king for the privilege.

When Mexico gained her independence the minerals became the property of the nation, except coal and oil, but the payment to the government for the exploitation privilege was materially lessened.

The owner of the surface of the land does not own the mineral, and the latter is subject to denunciation by anyone, subject to payment for damage done to property of the surface owner.

The new production tax, as will be seen by the accompanying decree, is fixed at 10 per cent *ad valorem* on gold and silver and 5 per cent on copper and other metals. The old tax averaged 4½ per cent.

For purposes of comparison it may be stated that the Canadian Federal tax on production was 13 per cent before the present war, and is now understood to be considerably higher.

The old Mexican tax on mineral-bearing lands taken up under the mining law was $6 per pertenencia per annum for the first twenty-five pertenencias, and $3 for each additional pertenancia. (A pertenencia is the unit of a mining claim and equals 2½ acres.)

The new tax is graduated and becomes proportionately heavier the greater the extent of the holding, the avowed purpose being to discourage the old system of holding extensive tracts of mineral-bearing lands and preventing others from exploiting them. Many foreign companies, under the old system, held tens of thousands of acres while only developing a small percentage thereof.

That the tax is not onerous or confiscatory can be seen by a little calculation. On the first ten pertenencias or 25 acres, the total annual payment is $60 Mexican, or $30 American gold. On the next 40 pertenencias it is $480 Mexican, $240 American. On the next 50 it is $900 Mexican, $450 American. On a total of 500 pentenencias, or 1,250 acres, amply sufficient for a very good-sized mine, the total annual tax is $11,040 Mexican, $5,520 American. On each 500 pertenencias in addition to the first 500 the total annual tax is $12,000 Mexican, or $6,000 American. While there are no data immediately available regarding American mining taxes, those varying according to locality, there being no Federal tax, it is believed the Mexican levy will compare favorably with those of any of the American mining States and with the taxes paid by some of the very companies that are objecting to the demands of Mexico.

DECREE OF MAY 1, 1916

The mining tax decree issued by Carranza May 1, 1916, is as follows:

Venustiano Carranza, first chief of the Constitutionalist Army, in charge of the executive power of the nation, making use of the extraordinary faculties with which I am empowered, I have seen fit to decree as follows:

Art. 1.—The mineral ores produced in the republic or in other countries are subject to the interior stamp tax, under the express provisions of the law. The tax will be in the future paid as specified below.

A.—The metals which are exported in the shape of mineral ores or earth, cyanides or sulphurets, or in any other form combined or mixed with substances which are not metals are not metals properly called, as follows:

Gold and silver at the rate of 10 per cent ad valorem.

Other metals at the rate of 5 per cent ad valorem.

The Finance Department will fix in due course, once the quotations in the foreign markets are known, the monthly rates for the payment of the tax.

B.—The taxes mentioned in the foregoing clause on metals treated in the country, which are mixed with other metals and whatever the alloy, will be reduced 20 per cent.

Art. 2.—The interior stamp tax will not be paid on the following:

A.—Gold brought to the mint to be coined, and that presented in the government of-

fices to be exchanged for silver coin at the rate of 75 centigrams of pure gold for each peso.

B.—Gold or silver Mexican or foreign coins.

C.—Silver exported in the shape of mineral ore, earth or powder, either in their natural state or concentrated mechanically, or in the shape of sulphurets, cyanides or smelting residues, always provided that the amount of silver contained in each does not exceed 250 grams per ton.

D.—Silver and gold, which having been imported into the republic in any of the shapes mentioned above, are exported within the four following months in the shape of ingots or bars, after being subjected to metallurgical treatment in the Mexican smelters.

E.—Gold and silver employed in national industry.

F.—Samples of ore in their natural state which are exported as provided by the administrative regulations.

G.—Copper ores in the cases where this metal is contained in a proportion below 10 per cent, and zinc ores in the cases where this metal is contained in proportion below 15 per cent.

Art. 3.—The assay dues will only be paid when this operation is performed at the request of the interested parties under the law or by order of the government; the smelting dues will be paid when the ingots or bars are required to be melted for their assay or valuation; and the dues for refining and sorting will be paid when these operations are performed at the request of owners in the government offices established for that purpose. The dues mentioned in this article will be specified in the respective tariffs to be issued by the Finance Department.

Art. 4.—The mining companies will be subject to the common financial legislation to govern all their acts and operations.

Art. 5.—The value of the special stamps which, under the laws in force, are to be affixed to the mining titles of ownership, will be $10 Mexican gold, whatever the nature of the mineral substance to be exploited.

Art. 6.—The annual tax on mining ownership will be paid as follows:

ON LANDS BEARING GOLD AND SILVER ORES

A.—One up to ten pertenencias, at the rate of $6 per annum per pertenencia, or $2 for each four months.

B.—Eleven up to 50 pertenencias, at the rate of $12 per annum per pertenencia, or $4 for each four months.

C.—Fifty-one up to 100 pertenencias, at the rate of $18 per annum per pertenencia, or $6 for each four months.

D.—One hundred and one pertenencias or over, at the rate of $24 per annum per pertenencia, or $8 for each four months.

MINERAL ORES OTHER THAN GOLD OR SILVER

A.—One up to 50 pertenencias, at the rate of $6 per annum per pertenencia, or $2 for each four months.

B.—Fifty-one up to 200 pertenencias, at the rate of $12 per annum per pertenencia, or $4 for each four months.

C.—Two hundred and one up to 500 pertenencias, at the rate of $18 per annum per pertenencia, or $6 for each four months.

D.—Five hundred and one pertenencias or over, at the rate of $24 per annum per pertenencia, or $8 for each four months.

Art. 7.—The rates will be raised in those cases where the pertenencias are the property of one single owner and they are located in the same mining district.

Art. 8.—The rates decreed by the government on mining will not be over two per cent on the value of mineral products other than iron or quicksilver.

Art. 9—Import dues will not be paid on zinc in the shape of ingots, pigs and the like; sulphur, alkaline cyanides, hyposulphides, or sodium, saltpeter or nitrate of potash or sodium, zinc in the shape of small sheets, in those cases where they are brought into the country to be used for the treatment of ores.

Art. 10.—All amounts due to the National Treasury under this law will be necessarily paid in Mexican gold.

TRANSITORY ARTICLES

Art. 1.—This law will go into effect from the date of its proclamation, but the rates mentioned in Article 6 will be applicable from July 1, 1916.

Art. 2.—The law of March 25, 1905; also the decree of March 1, 1915, and Articles 2, 4, 10, 11 and 12 of the law of March 27, 1897, as well as all other dispositions on the subject, contrary to the provisions of the present law, are abolished.

Art. 3.—The owners of mining properties having to make payments for taxes due will be governed as follows:

A.—The payments due before March 1, 1915, will be made in accordance with the rates in force before that date, an additional sum of 200 per cent being charged.

B.—The payments due for the period of March-July, 1915, will be made at the rate of $6 Mexican gold per pertenencia, for each of the first 25 pertenencias, and at the rate of $3 per annum for all pertenencias above that number, an additional sum of 100 per cent being charged.

C.—The payments due for the period of July-October, 1915, will be made at the rate of $6 Mexican gold per annum per pertenencia, whatever their number, an additional sum of 50 per cent being charged.

D.—The payments due for the period of November, 1915, to February, 1916, will be made at the rate of $8 Mexican gold per annum per pertenencia, an additional sum of 25 per cent being charged.

E.—The payments due for the period of March-June, 1916, will be made during this whole period in accordance with the rates specified in the decree of March 1, 1915, without additional charge.

Art. 4.—An unextendible term up to the 30th of June, 1916, is granted to pay, under the foregoing article, the amounts for the annual tax due up to the 29th of February, 1916. Should this payment not be made, caducity (lapse) will be declared.

Art. 5.—Tax payers are granted an option, once only and for the amounts unpaid up to the 29th of February, 1916, to pay same in Mexican gold or its equivalent in fiduciary money, at the rate fixed by the Monetary Commission.

Art. 6.—All taxpayers who, after March 1, 1915, should have paid any amount exceeding that specified in the transitory articles of this law shall have the right to get credit for same while making their subsequent payments.

Art. 7.—The stamp tax of five per cent on metals other than gold and silver, to which Clause A of Article 1 refers, will be levied on copper, always provided that the price of this metal is under 25 cents gold per pound in the New York market for immediate delivery. In those cases where the value of the copper exceeds 25 cents gold, but not above 30 cents, the tax will be at the rate of 6 per cent.

Art. 8.—The gold and silver metals which, without having left the country on this date, may have paid the stamp tax as provided by the decree of March 1, 1915, will pay at the custom houses the amount wanting to complete the rate specified in the present law.

Therefore, I order it to be printed, published, circulated and enforced.

Constitution and Reforms.—Given at the National Palace in Mexico, on the first day of May, nineteen hundred and sixteen.

(Signed) V. CARRANZA.

To Lic. Luis Cabrera, Secretary of State and of the Department of Finance and Public Credit.—Present.

This I communicate to you for your information and other purposes.

Constitution and Reforms.—Mexico, May 1, 1916.—By order of the Secretary. The Sub-Secretary.—R. Nieto.

DECREE OF SEPTEMBER 14, 1916.

Carranza's decree of September 14, 1916, as to operating mines, is as follows:

"Venustiano Carranza, first chief of the Constitutionalist Army, in charge of the executive power of the republic, making use of the powers with which I am invested, and, whereas:

"It is a general principle of public right generally admitted, not only by legislators, but also in the ordinary and daily practice of the most advanced countries, that the state must interfere, exercising such powers as belong to same, when it is required by the solidary interests, not only of the individual, but also of the country, or a humanitarian nature, either to secure their preservation or protection, or otherwise, its progressive development, thereby affording the supreme criterion to legitimatize and regulate the movement of government;

"That the interference of the state, when the solidary interests of the community are at stake, must be vested with such sufficient importance as required by the nature of said interests and the special circumstances of time and place, in order to render said interference adequate and opportune, and it must, in consequence, extend same precisely as far as the individual or corporative activity is not capable of acquiring the proposed end, in order that the state shall not interfere when there might only be at stake exclusively individual interests that do not affect the general welfare;

"That in the mining laws of Mexico, issued previously to the present decree, and the one preceding same, the working of mines was considered as pertaining to the public utility, in line with the principle hereinbefore mentioned, and said mines were granted precisely under said conditions which should have been fulfilled by maintaining a given number of laborers, in relation to the number of pertenencias granted with each title, in order that the operations might not be suspended for more than a certain given period; said utility consisting of the metalliferous veins found in the subsoil of the ground being developed for the benefit of the nation, and, in fact, that the exploitation of same might bring forth the necessary revenue in favor of the state, it being now considered very inconvenient for the mining industry and for the general industry of the country at large that this branch of the national wealth shall remain subject exclusively to the discretion of the mine owners, who might paralyze same at their will;

"That the mining law in effect, reserves in favor of the state the ownership of the mines, but, nevertheless, grants to private individuals or corporations the right of holding same, subject only to the payment of a tax, thereby abandoning to the individual initiative of the title holders the working of said mines and, at their discretion, the power to work them or maintain indefinitely the suspension of its operations;

"That said law, in addition to producing the effect of favoring only the great speculators, has made impossible the exploitation of mines by mine owners without capital, thereby concentrating all the important claims in the hands of foreign capitalists, who, rather than undertaking useful works, confine themselves to the gambling of market values, thereby bringing forth the grave inconvenience of monopolizing great numbers of claims and metalliferous veins, which are thereby excluded from fruitful exploitation in favor of the public interests;

"That in addition to the inconveniences set forth, the larger part of mine holders have created a further obstacle of grave consequence, in the present circumstances pre-

vailing in the country, in connection with the strife that the Constitutionalist government has had to sustain, firstly, with the usurpation of Huerta, and, secondly, against the reaction which succeeded in dividing the victorious army; said obstacle consisting in the paralyzation of work at the mines, thereby leaving the larger portion of the mining laboring community without means of life, and depriving the state of the revenue ordinarily produced by said industry;

"That the behavior of the larger proportion of the mining corporations above referred to is in the present case so much more dangerous, as it tends to increase the obstacles that the government has to contend with, in order to acquire the reestablishment of order and peace, as with said behavior they tend to assist the enemies of the government in their non-patriotic work of procuring the assistance of foreign governments, requesting their interference in the national affairs, under the pretext of guaranteeing foreign interests which are not by any means in danger, and which, furthermore, this government is disposed to protect efficaciously, granting to same as many guarantees as might reasonably be expected;

"That in view of the foregoing, it is necessary to place in effect opportune measures to remedy the inconveniences set forth, taking, in this sense, such steps as are required to protect the public interests, in so far as a painful experience has evidenced in an irrefutable way that the individual action left in connection with this matter to the free initiative dangerously hurts the solidary interests of the country.

"In view of all the foregoing, I have seen fit to decree as follows:

"Article first: All mine title holders are obliged to work their mines under the penalty of forfeiture, if work is suspended on same for more than two consecutive months, or during various intermittent periods totaling three months in one whole year.

"Article second: The mine title holders that might have a just cause for stopping their operations must obtain from the Department of Fomento the necessary permit for the suspension of same, which shall only be granted when the causes for the request should be evidenced; the permit for suspension shall not in any case be granted for a period of exceeding three months, unless after the expiration of same, the cause that originated the suspension for the exploitation might persist, as in this case said period shall be extended for such time as will strictly be necessary.

"Article third: The Department of Fomento, after considering the allegations of the interested parties, shall fix in each case, when new mining titles are granted, or for those already issued covering claims never before operated, the minimum number of laborers that must be employed by the mine title holder for the development of his claims, bearing in mind the number of hectares (pentenencias) granted for each title.

"Article fourth: The mine title holders that formerly had their mines in operation, must employ in their works as many laborers as they used to have under employment at the time of suspension of operations. Notwithstanding this, the Department of Fomento, after taking into consideration the allegations of the title holders, might alter said number of men, in line with the requirements of the works in each case.

"Article fifth: Once that the Department of Fomento has declared the forfeiture of a mine, this fact will immediately be communicated to the Department of Finance, who shall decide whether the mine involved should be placed at the disposal of the public, in order to be again denounced, or if the exploitation of same should be undertaken for account of the government, in which case a manager shall be appointed to supervise and continue the necessary working operations.

"Article sixth: This law shall become effective on the date of its publication.

"Given at the National Palace, in the City of Mexico, on the fourteenth day of the month of September, 1916. (Signed) V. CARRANZA."

NORTHWESTERN MINES WILL PAY $14,000,000 IN DIVIDENDS

Delegates from the Northwest to the Mining Congress Convention came to the meeting with this optimistic message:

"Delegates from Spokane, bearing credentials of the State of Washington, city of Spokane, and Northwest Mining Association, the latter representing allied mining interests of northwestern States and British Columbia, bring to this convention a tale of great prosperity.

"Dividends for 1916, from mines of Idaho and British Columbia, will closely approximate $14,000,000, of which the Coeur d'Alene district, greatest producer of lead-silver-zinc on the continent, contributes over $10,500,000 and British Columbia $3,000,000. Since records have been kept, the Coeur d'Alene district has paid $61,558,714 in dividends and British Columbia $16,578,911. Gross output for 1916 is estimated at $70,000,000, while the total gross output since discovery has approximated $500,000,000.

"This area stands today as one of the greatest producers of diversified metals in the world and, in the opinion of your delegates, the high water mark has not yet been reached. New mines are being developed and old ones revived. Wages are high and prosperity visible in every direction.

"The most important development during the past year is the fact that electrolytic smelting of zinc ores has passed the experimental stage and is now upon a commercial basis. Plants are now in operation at Trail, B. C., and at Great Falls, Mont., thus providing a greatly increase market and insuring evern greater prosperity in Northwest districts for many years to come."

LARGE NUMBER REGISTER AT MINING CONGRESS CONVENTION

Few Sessions of American Mining Congress Have Been So Well Attended As That Which Was Held in Chicago, November 13-16—Alphabetical List of Those Who Attended

Few conventions of the American Mining Congress have been so well attended as the one just held in Chicago. The list about to follow is of those who registered only. As is usually the case at such gatherings, many failed to register. The list is as follows:

Adams, Earl E., 530 First National Bank Building, Chicago; Adams, Harry C., Stega Building, Chicago; Adams, Willard C., McCormick Building, Chicago; Adams, W. T., Corinth, Miss.; Addings, Arthur, 5520 Blackstone Avenue, Chicago; Aggen, Nellie, 139 West Van Buren Street, Chicago; Alexander, I. W., 900 Lytton Building, Chicago; Allen Andrew, McCormick Building, Chicago; Andal, A. E., Okmulgee, Okla.; Anderson, B. E., Fisher Building, Chicago; Anderson, Hunter, Monadnock Building, Chicago; Andrews, R. L., Coffeyville, Kans.; Anthony, C. H., Columbus, Ohio; Arthur, A. T., Los Angeles, Cal.; Avery Colby M., Aurora, Ill.; Axell, Charles O., 4734 Kenmore Avenue, Chicago; Ayars, Chas. R., 184 Washington Street, Chicago; Ayars, S. V., Evanston, Ill.

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URGES ACTION ON BILL ENCOURAGING RESEARCH

"A step which may well bring most valuable and far-reaching results is that sought by a bill which has been before Congress for several years, which aims at the national encouragement of research. It was introduced and supported by the Association of Land Grant Colleges of the separate states and it calls for the establishment of an experiment station in each with an annual Federal appropriation of $15,000. There seemed good precedent for such a move. A very similar plan has been carried out in the state agricultural stations and by many states additional support has been given to this work, so that the country as a whole has long seen the good results. It was thought that very similar methods devoted to original, new, and experimental work in other engineering fields was warranted by the country's need for constructive research, the study of its supplies of untouched raw materials, and the developmnet and education of engineers.

"Every engineer who is interested in the advancement of his profession and in the welfare of the country will do well to follow the details and progress of this bill and lend it such support or constructive criticism as is possible." (Extract from the Mining Congress Convention paper of Dr. W. R. Whitney.)

Personals

M. M. Valerius and V. H. McNutt have returned to Tulsa after a six weeks' business visit to the East.

C. T. Griswold, of the Associated Geological Engineers, is in Wyoming, and Ernest Marquardt, of the same organization, is in Kansas.

Van H. Manning, director of the Bureau of Mines, was in New York the latter part of November consulting with John Hays Hammond and John L. Ricketts with regard to the smelter smoke problem at Anaconda. Dr. J. K. Clements acted as director during Mr. Manning's absence.

Charles F. Willis, director of the Arizona Bureau of Mines, was in Washington following the Mining Congress Convention. Mr. Willis was in personal charge of the Arizona exhibit which was an interesting feature of the Chicago meeting.

E. P. Mathewson has resigned as manager of the production works of the Anaconda Copper Company to accept a position as general manager of the British American Nickel Corporation at Sudberry, Ontario. His headquarters will be at Toronto.

S. A. Taylor, of Pittsburgh, Pa., was a caller at the Washington office of the American Mining Congress, on Monday, November 21.

SAFETY AND COMPENSATION ADD TO COAL PRICE

"The increased safety in the coal mines that has come through the combined efforts of the coal companies, the State inspectors, and the Federal Bureau of Mines necessarily involves some increase in cost of operation, but the few cents per ton thus added to the cost is a small price to pay for the satisfaction of having the stain of blood removed from the coal we buy. That form of social insurance which is now enforced through the workman's compensation laws alone adds from 2 to 5 cents a ton to the cost of coal." (Extract from the address of Geo. Otis Smith at the Mining Congress Convention.)

"The prospector is the product and child of the American Mining Law. If he is a desirable one, it will be well worth while to ascertain what there is in the law that has produced him, and keeps him with us." (Extract from address of F. W. Van Wagenan, at the Mining Congress Convention.)

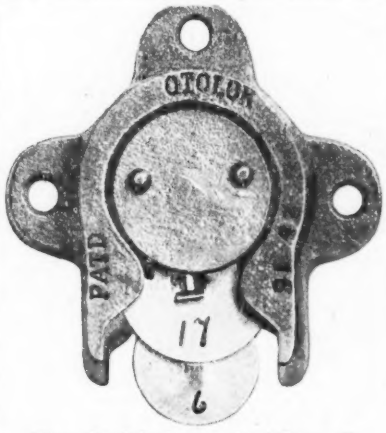
RADIUM IS FOUND IN TWO TYPES OF MINERALS

Radium is found in two principal types of minerals. As pitchblende, occurring only in granitic rocks, and in the oxidized minerals which have been formed probably from the breaking down of pitchblende and have been carried to other places in solution. The principal mineral of the oxidized group is carnotite, the yellow and generally powdery mineral which is found in considerable quantities in southwestern Colorado and southeastern Utah.

Other oxidized minerals, such as torbernite and autunite are found in the veins which carry pitchblende or in the oxidized portions of those veins which are thought to have contained pitchblende at one time. They are of little commercial value, although they have been mined as a source of radium in Portugal and South Australia.

MUST MAKE PUBLIC REALIZE IMPORTANCE OF MINING

"One of the most important lessons for the people of the United States, as the late Dr. Holmes pointed out, is to realize the importance of the mining industry; and a means of teaching them some part of this lesson has been found in the publication of dividends paid by the principal mining companies." (Extract from address of C. A. Tupper, at the Mining Congress Convention.)



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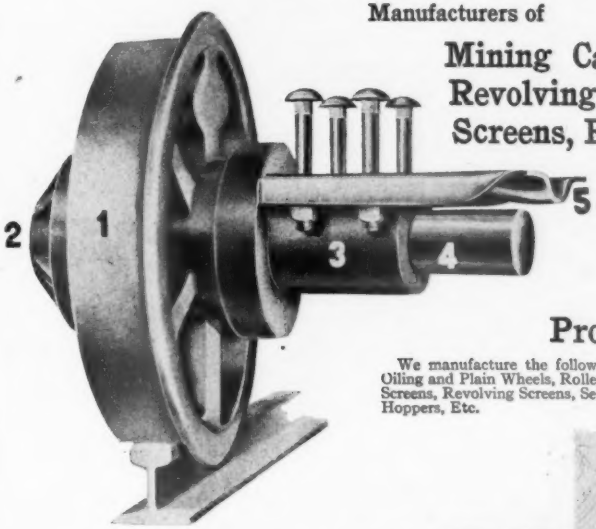

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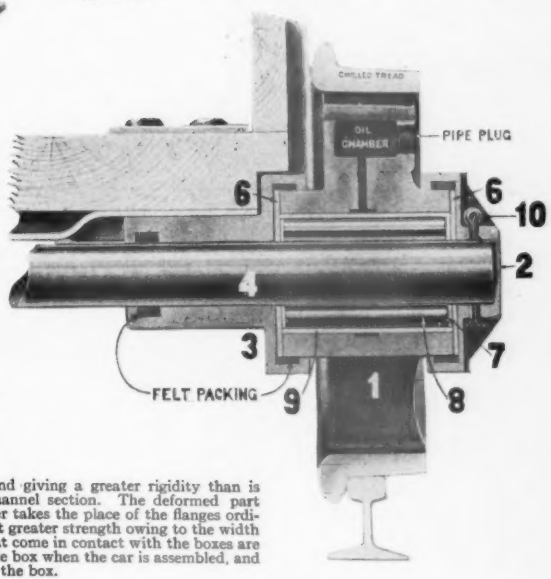
Is constructed with pressed steel channels that hold the boxes in perfect alignment, running all the way across the car and thus preventing them from getting out of line. It has the bolts running through the bottom of the car, going through the axle boxes, pressed steel channels and wooden bottom, and the heads are protected on the inside of the car by a washer also, which does not allow the bolts to wear the wood and cause the axle to get out of line. The pressed channels are not of the ordinary rolled type channel, but are made from ¼-inch plate, and the deformed part of the channel in the center gives it greater strength and also wider bearing on the bottom of the car, allowing the bolts to be placed further apart and giving a greater rigidity than is accomplished by the ordinary rolled channel section. The deformed part of the channel that is formed in the center takes the place of the flanges ordinarily used, and in addition to this gives it greater strength owing to the width of this deformed section. The flanges that come in contact with the boxes are driven down tight on either side of the axle box when the car is assembled, and there is no play between the channel and the box.



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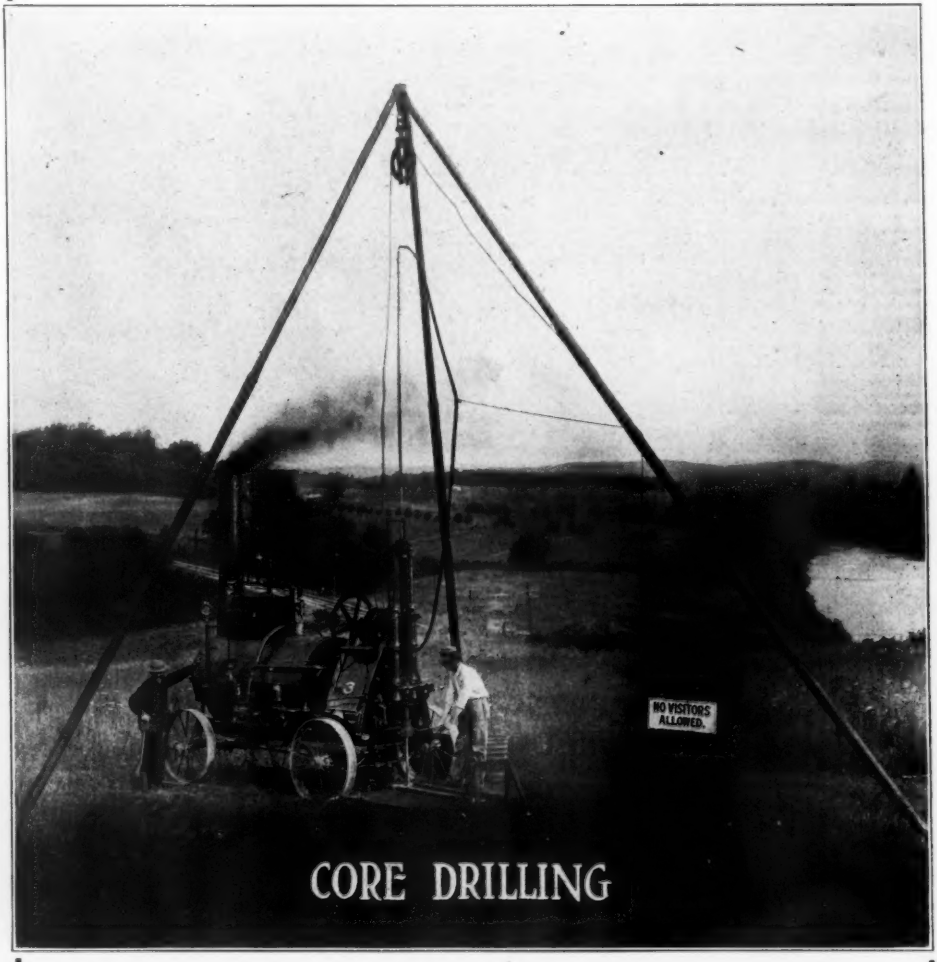

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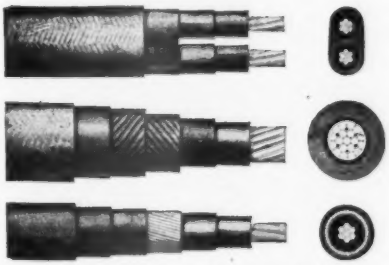

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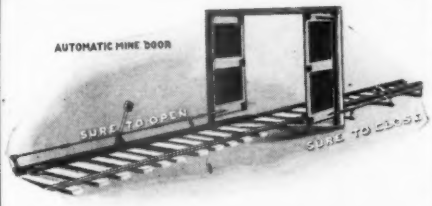

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AMERICAN MINE DOORS

Every mining man knows that hand operated doors are dangerous and inefficient.

Write down all their drawbacks in succession—every one you can think of.

The American Mine Door isn't any one of them, but it IS safe and certain at all times.

Doesn't that make it interesting to you? Upon request, we shall be glad to tell you more about it.

THE AMERICAN MINE DOOR CO.
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Car Wheel Service

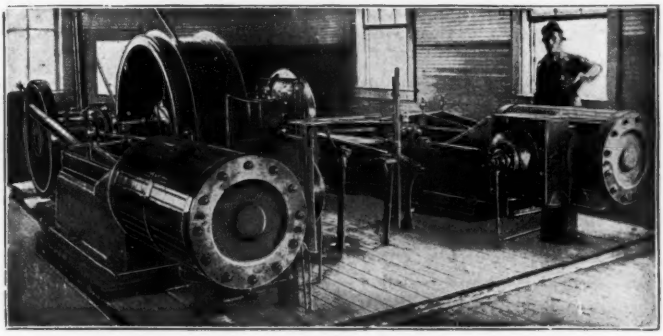
That's what you pay for, and should receive. Let us prove by actual test in your own mine what a real UP TO THE MINUTE car wheel will do. Every wheel leaving our factory is deeply chilled and annealed—GUARANTEED to give perfect service. Date cast on every wheel and should it fail within a reasonable time (you to be the judge) we agree to replace **FREE OF CHARGE.** We take the risk—you're the judge. Think it over. Let us quote you now.

SOUTHERN ILLINOIS MACHINE & FOUNDRY COMPANY
Murphysboro, Illinois

ROBT. HOLMES & BROS., Inc.

Successors to DANVILLE FOUNDRY & MACHINE CO.

Corner North and Hazel Streets, Danville, Ill.



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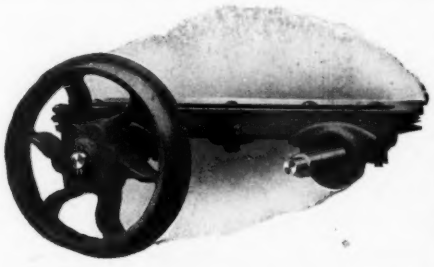
Danville Hoisting and Haulage Engines, both Light and Heavy Duty Type, first and second motion.

Halbert's Patent Self Dumping Cages.
Plain Cages.
Holmes' Shaker Screen.
Holmes' Telescoping End Loader.
Holmes' Patent Weigh Hopper.
Holmes' Automatic Car Lifts for mine bottoms.
Iron, Bronze and Brass Castings of all description.
Heavy Iron and Steel Forgings.

All kinds of Plate Metal Work, particularly for coal mines.

Phillips Patent Open Cap Wheel Truck



THE economies that this Truck will effect are real and tangible. The wheels will not wear out internally and are guaranteed in this respect; they seldom break, due to our process of annealing and the high quality of materials used; are thoroughly chilled, and when lubricated with fluid grease will run for six months to a year with one lubrication. This Truck is used at hundreds of Mines, two concerns each using over 10,000, while literally dozens of other companies have found it profitable to discard their old running gear in order to equip their cars with it exclusively. It will pay you to investigate this Truck.

Write for full particulars

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Manufacturers of

Mine Cars and Trucks—Gravity Screening Equipments—Larry Wagons
Phillips Automatic Cross-Over and Automatic Push-Back Car Dumps

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The GOODMAN
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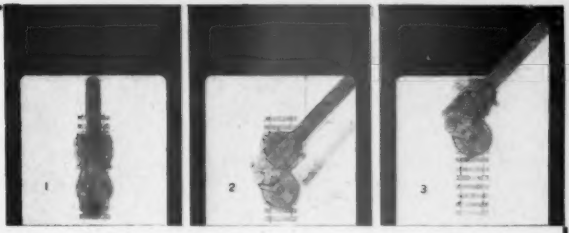
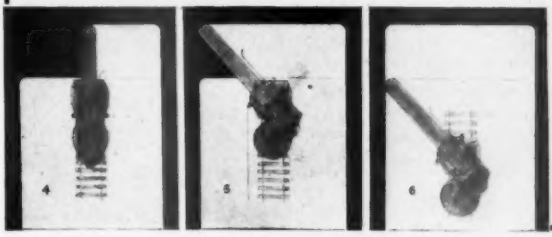


1. Traveling with its cutter arm in mid position the machine arrives at the face in the room.
2. Anchor hole is drilled (by power), anchor set, feed rope attached and cutter arm swung to the right-hand rib.
3. Cutter chain is started, and the cutter arm digs its way into the face as the feed rope is wound in.
4. Straight face cut is made by swinging the arm to the left, in which movement it is caused to withdraw by cam action in such manner as to maintain straight line cutting.
5. Face cut continues to left-hand rib, the cutter arm advancing by cam action to continue straight face.
6. Cut finished by backing the machine along the track using feed rope attached to a jack set behind.



Full details in Bulletin 121-M.

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(48)

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A Drifting Drill without a Feed-screw

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The Rotator can be detached from this mounting by loosening three nuts, and then becomes a self-rotating hand drill of great speed.

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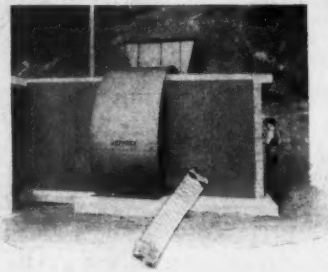

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